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APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/347,283	09/20/2022	11445727	UP20010US (FPAA06284)	4341

23413 7590 08/31/2022

CANTOR COLBURN LLP
20 Church Street
22nd Floor
Hartford, CT 06103

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(application filed on or after May 29, 2000)

The Patent Term Adjustment is 0 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Patents Stakeholder Experience (OPSE), Stakeholder Support Division (SSD) at (571)-272-4200.

INVENTOR(s) (Please see PAIR WEB site http://pair.uspto.gov for additional inventors):

Carlos Eduardo FABRI, Sao Paulo -SP, BRAZIL;
Rajju Devidas SHROFF, Mumbai, Maharashtra, INDIA;
Jaidev Rajnikant SHROFF, Dubai, UNITED ARAB EMIRATES;
Vikram Rajnikant SHROFF, Dubai, UNITED ARAB EMIRATES;

APPLICANT(s) (Please see PAIR WEB site http://pair.uspto.gov for additional applicants):

UPL LTD, West Bengal, Haldia, INDIA

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The USA offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to encourage and facilitate business investment. To learn more about why the USA is the best country in the world to develop technology, manufacture products, and grow your business, visit SelectUSA.gov.

IR103 (Rev. 10/09)

Notice of References Cited

Application/Control No.	Applicant(s)/Patent Under Reexamination
16/347,283	FABRI et al.
Examiner	Art Unit
Mina Haghighatian	1616

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-20150181870-A1	07-2015	Kemmitt; Greg	A01N37/42	514/229.2
	B					
	C					
	D					
	E					
	F					
	G					
	H					
	I					
	J					
	K					
	L					
	M					

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
	N	EP 2783569	12-2014	~~GERMANY~~ EP	Grammenos et al	--------
	O	Change(s) applied				
	P	to document,				
	Q	/C.G/				
	R	2/22/2022				
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (02-18)
Approved for use through 11/30/2020. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	16347283
Filing Date	2019-05-03
First Named Inventor	Carlos Eduardo FABRI
Art Unit	1616
Examiner Name	Mina Haghighatian
Attorney Docket Number	UP20010US

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Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
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Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	20210007355	A1	2021-01-14	GONGORA ET AL	
	2	20210022343	A1	2021-01-28	GONGORA ET AL	
	3	20210106006	A1	2021-04-14	FABRI ET AL	
	4	20210127679	A1	2021-05-06	FABRI ET AL	
	5	20210137119	A1	2021-05-13	FABRI ET AL	

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /M.H/

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	16347283
Filing Date	2019-05-03
First Named Inventor	Carlos Eduardo FABRI
Art Unit	1616
Examiner Name	Mina Haghighatian
Attorney Docket Number	UP20010US

6	20220039388	A1	2022-02-10	FABRI ET AL	

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Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
	1		

If you wish to add additional non-patent literature document citation information please click the Add button Add

EXAMINER SIGNATURE

Examiner Signature	/MINA HAGHIGHATIAN/	Date Considered	06/08/2022

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /M.H/

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	16347283
Filing Date	2019-05-03
First Named Inventor	Carlos Eduardo FABRI
Art Unit	1616
Examiner Name	Mina Haghighatian
Attorney Docket Number	UP20010US

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Karen A. LeCuyer/	Date (YYYY-MM-DD)	2022-04-07
Name/Print	Karen A. LeCuyer	Registration Number	51928

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /M.H/

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these record s.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /M.H/

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), by mail or fax, or via EFS-Web.

By mail, send to: Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

By fax, send to: (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

23413 7590 02/16/2022
CANTOR COLBURN LLP
20 Church Street
22nd Floor
Hartford, CT 06103

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

(Typed or printed name)

(Signature)

(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/347,283	05/03/2019	Carlos Eduardo FABRI	UP20010US (FPAA06284)	4341

TITLE OF INVENTION: FUNGICIDAL COMBINATIONS

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$1200	$0.00	$0.00	$1200	05/16/2022

EXAMINER	ART UNIT	CLASS-SUBCLASS
HAGHIGHATIAN, MINA	1616	504-136000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

☐ Change of correspondence address (or Change of Correspondence Address form PTO/AIA/122 or PTO/SB/122) attached.

☐ "Fee Address" indication (or "Fee Address" indication form PTO/AIA/47 or PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list
(1) The names of up to 3 registered patent attorneys or agents OR, alternatively.
(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 CANTOR COLBURN LLP
2
3

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE: UPL LTD

(B) RESIDENCE: (CITY and STATE OR COUNTRY): HALDIA, WEST BENGAL, INDIA

Please check the appropriate assignee category or categories (will not be printed on the patent) : ☐ Individual ☒ Corporation or other private group entity ☐ Government

4a. Fees submitted: ☒ Issue Fee ☐ Publication Fee (if required) ☒ Advance Order - # of Copies 5

4b. Method of Payment: *(Please first reapply any previously paid fee shown above)*

☒ Electronic Payment via EFS-Web ☐ Enclosed check ☐ Non-electronic payment by credit card (Attach form PTO-2038)

☒ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. 061130

5. **Change in Entity Status** (from status indicated above)

☐ Applicant certifying micro entity status. See 37 CFR 1.29

☐ Applicant asserting small entity status. See 37 CFR 1.27

☐ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature /David A. Fox/ Date June 27, 2022

Typed or printed name David A. Fox Registration No. 38,807

PTOL-85 Part B (08-18) Approved for use through 01/31/2020 OMB 0651-0033 U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Electronic Patent Application Fee Transmittal

Application Number:	16347283
Filing Date:	03-May-2019
Title of Invention:	FUNGICIDAL COMBINATIONS
First Named Inventor/Applicant Name:	Carlos Eduardo FABRI
Filer:	David Fox/LaShauna Greene
Attorney Docket Number:	UP20010US (FPAA06284)

Filed as Large Entity

Filing Fees for U.S. National Stage under 35 USC 371

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
UTILITY APPL ISSUE FEE	1501	1	1200	1200

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension-of-Time:				
Miscellaneous:				
PRINTED COPY OF PATENT - NO COLOR	8001	5	3	15
	Total in USD ($)			**1215**

Electronic Acknowledgement Receipt

EFS ID:	46055809
Application Number:	16347283
International Application Number:	
Confirmation Number:	4341
Title of Invention:	FUNGICIDAL COMBINATIONS
First Named Inventor/Applicant Name:	Carlos Eduardo FABRI
Customer Number:	23413
Filer:	David Fox/LaShauna Greene
Filer Authorized By:	David Fox
Attorney Docket Number:	UP20010US (FPAA06284)
Receipt Date:	27-JUN-2022
Filing Date:	03-MAY-2019
Time Stamp:	17:37:19
Application Type:	U.S. National Stage under 35 USC 371

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$1215
RAM confirmation Number	E20226QH41470635
Deposit Account	061130
Authorized User	LaShauna Greene

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

37 CFR 1.17 (Patent application and reexamination processing fees)

37 CFR 1.19 (Document supply fees)

37 CFR 1.20 (Post Issuance fees)

37 CFR 1.21 (Miscellaneous fees and charges)

37 CFR 1.492 (National application filing, search, and examination fees)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Issue Fee Payment (PTO-85B)	8WC7645.PDF	1045098 a99e5b1bb409131d7cf81b3a6fc799fdcbe5b2c8	no	1
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	40221 a15191437e2b0463254a03da2f5a862a55932d4f	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	1085319		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.
National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.
New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

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UNITED STATES DEPARTMENT OF COMMERCE
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NOTICE OF ALLOWANCE AND FEE(S) DUE

23413 7590 06/21/2022

CANTOR COLBURN LLP
20 Church Street
22nd Floor
Hartford, CT 06103

EXAMINER	
HAGHIGHATIAN, MINA	
ART UNIT	PAPER NUMBER
1616	

DATE MAILED: 06/21/2022

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/347,283	05/03/2019	Carlos Eduardo FABRI	UP20010US (FPAA06284)	4341

TITLE OF INVENTION: FUNGICIDAL COMBINATIONS

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$1200	$0.00	$0.00	$1200	09/21/2022

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the ENTITY STATUS shown above. If the ENTITY STATUS is shown as SMALL or MICRO, verify whether entitlement to that entity status still applies.

If the ENTITY STATUS is the same as shown above, pay the TOTAL FEE(S) DUE shown above.

If the ENTITY STATUS is changed from that shown above, on PART B - FEE(S) TRANSMITTAL, complete section number 5 titled "Change in Entity Status (from status indicated above)".

For purposes of this notice, small entity fees are 1/2 the amount of undiscounted fees, and micro entity fees are 1/2 the amount of small entity fees.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Maintenance fees are due in utility patents issuing on applications filed on or after Dec. 12, 1980. It is patentee's responsibility to ensure timely payment of maintenance fees when due. More information is available at www.uspto.gov/PatentMaintenanceFees.

PTOL-85 (Rev. 02/11)

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), by mail or fax, or via EFS-Web.

By mail, send to: Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

By fax, send to: (571)-273-2885

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CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

23413 7590 06/21/2022
CANTOR COLBURN LLP
20 Church Street
22nd Floor
Hartford, CT 06103

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Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

(Typed or printed name)

(Signature)

(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/347,283	05/03/2019	Carlos Eduardo FABRI	UP20010US (FPAA06284)	4341

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nonprovisional	UNDISCOUNTED	$1200	$0.00	$0.00	$1200	09/21/2022

EXAMINER	ART UNIT	CLASS-SUBCLASS
HAGHIGHATIAN, MINA	1616	504-136000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

❑ Change of correspondence address (or Change of Correspondence Address form PTO/AIA/122 or PTO/SB/122) attached.

❑ "Fee Address" indication (or "Fee Address" Indication form PTO/AIA/47 or PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list
(1) The names of up to 3 registered patent attorneys or agents OR, alternatively, 1
(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. 2
3

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ❑ Individual ❑ Corporation or other private group entity ❑ Government

4a. Fees submitted: ❑ Issue Fee ❑ Publication Fee (if required) ❑ Advance Order - # of Copies _____

4b. Method of Payment: *(Please first reapply any previously paid fee shown above)*

❑ Electronic Payment via EFS-Web ❑ Enclosed check ❑ Non-electronic payment by credit card (Attach form PTO-2038)

❑ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. _____

5. **Change in Entity Status** (from status indicated above)

❑ Applicant certifying micro entity status. See 37 CFR 1.29

❑ Applicant asserting small entity status. See 37 CFR 1.27

❑ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

PTOL-85 Part B (08-18) Approved for use through 01/31/2020 OMB 0651-0033 U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

UNITED STATES PATENT AND TRADEMARK OFFICE

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/347,283	05/03/2019	Carlos Eduardo FABRI	UP20010US (FPAA06284)	4341

23413 7590 06/21/2022

CANTOR COLBURN LLP
20 Church Street
22nd Floor
Hartford, CT 06103

EXAMINER	
HAGHIGHATIAN, MINA	

ART UNIT	PAPER NUMBER
1616	

DATE MAILED: 06/21/2022

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(Applications filed on or after May 29, 2000)

The Office has discontinued providing a Patent Term Adjustment (PTA) calculation with the Notice of Allowance.

Section 1(h)(2) of the AIA Technical Corrections Act amended 35 U.S.C. 154(b)(3)(B)(i) to eliminate the requirement that the Office provide a patent term adjustment determination with the notice of allowance. See Revisions to Patent Term Adjustment, 78 Fed. Reg. 19416, 19417 (Apr. 1, 2013). Therefore, the Office is no longer providing an initial patent term adjustment determination with the notice of allowance. The Office will continue to provide a patent term adjustment determination with the Issue Notification Letter that is mailed to applicant approximately three weeks prior to the issue date of the patent, and will include the patent term adjustment on the patent. Any request for reconsideration of the patent term adjustment determination (or reinstatement of patent term adjustment) should follow the process outlined in 37 CFR 1.705.

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

OMB Clearance and PRA Burden Statement for PTOL-85 Part B

The Paperwork Reduction Act (PRA) of 1995 requires Federal agencies to obtain Office of Management and Budget approval before requesting most types of information from the public. When OMB approves an agency request to collect information from the public, OMB (i) provides a valid OMB Control Number and expiration date for the agency to display on the instrument that will be used to collect the information and (ii) requires the agency to inform the public about the OMB Control Number's legal significance in accordance with 5 CFR 1320.5(b).

The information collected by PTOL-85 Part B is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450. Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Notice of Allowability

Application No.	Applicant(s)	
16/347,283	FABRI et al.	
Examiner	**Art Unit**	**AIA (FITF) Status**
Mina Haghighatian	1616	Yes

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☑ This communication is responsive to RCE filed on 04/27/22.
   ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

3. ☑ The allowed claim(s) is/are 1 and 9-17. As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see **http://www.uspto.gov/patents/init_events/pph/index.jsp** or send an inquiry to **PPHfeedback@uspto.gov.**

4. ☑ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   Certified copies:

   a) ☑ All b) ☐ Some* c) ☐ None of the:

   1. ☐ Certified copies of the priority documents have been received.
   2. ☐ Certified copies of the priority documents have been received in Application No. _____.
   3. ☑ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____.
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material _____.
4. ☐ Interview Summary (PTO-413), Paper No./Mail Date. _____.
5. ☐ Examiner's Amendment/Comment
6. ☑ Examiner's Statement of Reasons for Allowance
7. ☐ Other _____.

/MINA HAGHIGHATIAN/
Primary Examiner, Art Unit 1616

DETAILED ACTION

Notice of Pre-AIA or AIA Status

The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the **AIA**.

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after allowance or after an Office action under *Ex Parte Quayle*, 25 USPQ 74, 453 O.G. 213 (Comm'r Pat. 1935). Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on 04/27/22 has been entered.

Receipt is acknowledged of an IDS filed on 04/27/22. No claims have been amended. Claims **1 and 9-17** remain pending and under examination on the merits.

Reasons for Allowance

The following is an examiner's statement of reasons for allowance: the claims are drawn to a fungicidal combination consisting of benzovindiflupyr, mancozeb and at least another fungicide selected form an ergosterol biosynthesis inhibitor fungicide and a quinone outside inhibitor fungicide. A Markush listing of the said ergosterol biosynthesis inhibitor fungicide and a quinone outside inhibitor fungicide is provided.

The references of record, while teaching a composition comprising of the said fungicides or a combination thereof, do not recognize or fairly suggest a combination consisting of the said fungicides. In other words, the references teach compositions comprising fungicides that are excluded by the examined claims. Based on the teachings of the prior art. One of ordinary skill in the art is not given a motivation to exclude the required fungicides to arrive at the claimed combination.

None of the documents listed on the IDS of 04/27/22 render the examined claims obvious and do not apply as references in obviousness type double patenting rejections over the examined claims.

Claims 1 and 9-17 are allowed.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mina Haghighatian whose telephone number is (571)272-0615. The examiner can normally be reached M-F, 7-5 EST.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at http://www.uspto.gov/interviewpractice.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sue Liu can be reached on 571-272-5539. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of published or unpublished applications may be obtained from Patent Center. Unpublished application information in Patent Center is available to registered users. To file and manage patent submissions in Patent Center, visit: https://patentcenter.uspto.gov. Visit https://www.uspto.gov/patents/apply/patent-center for more information about Patent Center and https://www.uspto.gov/patents/docx for information about filing in DOCX format. For additional questions, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Mina Haghighatian/

Mina Haghighatian
Primary Examiner
Art Unit 1616

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/347,283	FABRI et al.
	Examiner	Art Unit
	Mina Haghighatian	1616

CPC										
Symbol								Type	Version	
A01N	/	47	/	14				F	2013-01-01	
A01N	/	37	/	36				I	2013-01-01	
A01N	/	43	/	16				I	2013-01-01	
A01N	/	43	/	40				I	2013-01-01	
A01N	/	43	/	54				I	2013-01-01	
A01N	/	43	/	56				I	2013-01-01	
A01N	/	43	/	60				I	2013-01-01	
A01N	/	43	/	653				I	2013-01-01	
A01N	/	45	/	02				I	2013-01-01	

CPC Combination Sets										
Symbol								Type	Set	Ranking	Version
A01N	/	47	/	14				I	1	1	2013-01-01
A01N	/	43	/	40				I	1	2	2013-01-01
A01N	/	43	/	54				I	1	3	2013-01-01
A01N	/	43	/	56				I	1	4	2013-01-01
A01N	/	43	/	653				I	1	5	2013-01-01
A01N	/	45	/	02				I	1	6	2013-01-01
A01N	/	43	/	40				I	2	1	2013-01-01
A01N	/	43	/	54				I	2	2	2013-01-01
A01N	/	43	/	653				I	2	3	2013-01-01
A01N	/	43	/	653				I	3	1	2013-01-01
A01N	/	43	/	54				I	3	2	2013-01-01
A01N	/	45	/	02				I	4	1	2013-01-01
A01N	/	43	/	56				I	4	2	2013-01-01
A01N	/	43	/	653				I	4	3	2013-01-01
A01N	/	43	/	56				I	5	1	2013-01-01
A01N	/	43	/	54				I	5	2	2013-01-01
A01N	/	43	/	653				I	5	3	2013-01-01

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	10	
/MINA HAGHIGHATIAN/ Primary Examiner, Art Unit 1616	08 June 2022	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	------

U.S. Patent and Trademark Office — Part of Paper No.: 20220608

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/347,283	FABRI et al.
	Examiner	**Art Unit**
	Mina Haghighatian	1616

INTERNATIONAL CLASSIFICATION				
CLAIMED				
A01N	/	47	/	14
A01N	/	37	/	36
A01N	/	43	/	16
A01N	/	43	/	40
A01N	/	43	/	54
A01N	/	43	/	56
A01N	/	43	/	60
A01N	/	43	/	653
A01N	/	45	/	02

NON-CLAIMED				
	/		/	

US ORIGINAL CLASSIFICATION	
CLASS	**SUBCLASS**

CROSS REFERENCES(S)						
CLASS	**SUBCLASS (ONE SUBCLASS PER BLOCK)**					

NONE		**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	10	
/MINA HAGHIGHATIAN/ Primary Examiner, Art Unit 1616	08 June 2022	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	------

U.S. Patent and Trademark Office — Part of Paper No.: 20220608

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/347,283	FABRI et al.
	Examiner	**Art Unit**
	Mina Haghighatian	1616

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☑ T.D. ☐ R.1.47

CLAIMS

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
1	1	10	17												
2	9														
3	10														
4	11														
5	12														
6	13														
7	14														
8	15														
9	16														

NONE		**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	10	
/MINA HAGHIGHATIAN/ Primary Examiner, Art Unit 1616	08 June 2022	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	------

U.S. Patent and Trademark Office — Part of Paper No.: 20220608

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/347,283	FABRI et al.
	Examiner	Art Unit
	Mina Haghighatian	1616

CPC - Searched*		
Symbol	Date	Examiner
A01N 47/14	02/03/2022	MH
A01N 37/36	02/03/2022	MH
A01N 43/16	02/03/2022	MH
A01N 43/40	02/03/2022	MH
A01N 43/54	02/03/2022	MH
A01N 43/56	02/03/2022	MH
A01N 43/60	02/03/2022	MH
A01N 43/653	02/03/2022	MH
A01N 45/02	02/03/2022	MH

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes		
Search Notes	Date	Examiner

/MINA HAGHIGHATIAN/
Primary Examiner, Art Unit 1616

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/347,283	FABRI et al.
	Examiner	Art Unit
	Mina Haghighatian	1616

WEST- Text and Inventor names searched	08/14/2020	mh
NPL-Text and Inventor names searched	08/14/2020	mh
Google patent search	08/14/2020	mh
Google scholar search	08/14/2020	mh
Global dossier	08/14/2020	mh
Espacnet search	08/14/2020	mh
Foreign patent finder	08/14/2020	mh
PALM- Inventor names search	08/14/2020	mh
IDS considered	08/14/2020	mh
WEST search update	08/17/2020	mh
WESTsearch update	08/17/2020	mh
WEST- Text and Inventor names searched	01/14/2021	MH
NPL-Text and Inventor names searched	01/14/2021	MH
WEST search updated	01/14/2021	MH
WEST- Text, inventor names searched	01/14/2021	MH
WEST- Text, classification searched	01/14/2021	MH
Google scholar search	01/14/2021	MH
Google patent search	01/15/2021	MH
Foreign patent finder	01/15/2021	MH
WEST-copending patents and applications searched	01/15/2021	MH
WEST text, classification and inventor names search	06/07/2021	mh
Google scholar search	06/07/2021	mh
Google patent search	06/07/2021	mh
Espacenet search	06/07/2021	mh
Global dossier	06/07/2021	mh
IDS considered	06/08/2021	mh
PALM- Inventor names search	06/07/2021	mh
All above searches updated	02/03/2022	MH
IDS of 04/27/22 considered	06/08/2022	mh

/MINA HAGHIGHATIAN/
Primary Examiner, Art Unit 1616

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/347,283	FABRI et al.
	Examiner	Art Unit
	Mina Haghighatian	1616

Interference Search			
US Class/CPC Symbol	**US Subclass/CPC Group**	**Date**	**Examiner**
A01N	47/14; 37/36; 43/16; 43/40; 43/54; 43/56; 43/56; 43/653	02/03/2022	MH

/MINA HAGHIGHATIAN/
Primary Examiner, Art Unit 1616

Refine Search

Search Results

Terms	Documents
20220039388	1

Database:
US Patents Full-Text Database
US Patents OCR Backfile
EPO Abstracts Database
JPO Abstracts Database
Derwent World Patents Index
IBM Technical Disclosure Bulletin Database
Foreign Patent Retrieval

Search Type: (•) Prior Art ( ) Interference

Search: L8 [Refine Search]

Order By: (•) Date ( ) Hits

[Recall Text] [Clear] [Interrupt]

Search History

DATE: Wednesday, June 08, 2022 Purge Queries Printable Copy Create Case

Order By	Set Name Side by Side	Query	Hit Count	Set Name Result Set	Set Name Grid	Set Name Classification
Prior Art Searches						
	DB=PGPB; PLUR=YES; OP=AND					
Date	L1	16648535	1	L1	L1	L1
Date	L2	L1	1	L2	L2	L2
Date	L3	20210007355	1	L3	L3	L3
Date	L4	20210022343	1	L4	L4	L4
Date	L5	20210106006	1	L5	L5	L5
Date	L6	20210127679	1	L6	L6	L6
Date	L7	20210137119	1	L7	L7	L7

Date	L8	20220039388	1	L8	L8	L8

END OF SEARCH HISTORY

Doc code: RCEX
Doc description: Request for Continued Examination (RCE)

PTO/SB/30EFS (01-22)
Approved for use through 05/31/2024. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

REQUEST FOR CONTINUED EXAMINATION(RCE)TRANSMITTAL
(Submitted Only via EFS-Web)

Application Number	16347283	Filing Date	2019-05-03	Docket Number (if applicable)	UP20010US	Art Unit	1616
First Named Inventor	Carlos Eduardo Fabri			Examiner Name	Mina Haghighatian		

This is a Request for Continued Examination (RCE) under 37 CFR 1.114 of the above-identified application.
Request for Continued Examination (RCE) practice under 37 CFR 1.114 does not apply to any utility or plant application filed prior to June 8, 1995, or to any design application. The Instruction Sheet for this form is located at WWW.USPTO.GOV

SUBMISSION REQUIRED UNDER 37 CFR 1.114

Note: If the RCE is proper, any previously filed unentered amendments and amendments enclosed with the RCE will be entered in the order in which they were filed unless applicant instructs otherwise. If applicant does not wish to have any previously filed unentered amendment(s) entered, applicant must request non-entry of such amendment(s).

☐ Previously submitted. If a final Office action is outstanding, any amendments filed after the final Office action may be considered as a submission even if this box is not checked.

☐ Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____

☐ Other

☒ Enclosed

☐ Amendment/Reply

☒ Information Disclosure Statement (IDS)

☐ Affidavit(s)/ Declaration(s)

☐ Other

MISCELLANEOUS

☐ Suspension of action on the above-identified application is requested under 37 CFR 1.103(c) for a period of months _____
(Period of suspension shall not exceed 3 months; Fee under 37 CFR 1.17(i) required)

☐ Other

FEES

☒ **The RCE fee under 37 CFR 1.17(e) is required by 37 CFR 1.114 when the RCE is filed.**
The Director is hereby authorized to charge any underpayment of fees, or credit any overpayments, to Deposit Account No 061130

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

☒ Patent Practitioner Signature
Applicant Signature

EFS - Web 2.1.16

PTO/SB/30EFS (01-22)
Approved for use through 05/31/2024. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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Signature of Registered U.S. Patent Practitioner

Signature	/Karen A. LeCuyer/	Date (YYYY-MM-DD)	2022-04-27
Name	Karen A. LeCuyer	Registration Number	51928

This collection of information is required by 37 CFR 1.114. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

PTO/SB/08a (02-18)
Approved for use through 11/30/2020. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	16347283
Filing Date	2019-05-03
First Named Inventor	Carlos Eduardo FABRI
Art Unit	1616
Examiner Name	Mina Haghighatian
Attorney Docket Number	UP20010US

U.S.PATENTS Remove

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1					

If you wish to add additional U.S. Patent citation information please click the Add button. Add

U.S.PATENT APPLICATION PUBLICATIONS Remove

Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	20210007355	A1	2021-01-14	GONGORA ET AL	
	2	20210022343	A1	2021-01-28	GONGORA ET AL	
	3	20210106006	A1	2021-04-14	FABRI ET AL	
	4	20210127679	A1	2021-05-06	FABRI ET AL	
	5	20210137119	A1	2021-05-13	FABRI ET AL	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	16347283
Filing Date	2019-05-03
First Named Inventor	Carlos Eduardo FABRI
Art Unit	1616
Examiner Name	Mina Haghighatian
Attorney Docket Number	UP20010US

6	20220039388	A1	2022-02-10	FABRI ET AL	

If you wish to add additional U.S. Published Application citation information please click the Add button. Add

FOREIGN PATENT DOCUMENTS Remove

Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2]	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
	1							

If you wish to add additional Foreign Patent Document citation information please click the Add button Add

NON-PATENT LITERATURE DOCUMENTS Remove

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
	1		

If you wish to add additional non-patent literature document citation information please click the Add button Add

EXAMINER SIGNATURE

Examiner Signature		Date Considered	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	16347283
Filing Date	2019-05-03
First Named Inventor	Carlos Eduardo FABRI
Art Unit	1616
Examiner Name	Mina Haghighatian
Attorney Docket Number	UP20010US

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Karen A. LeCuyer/	Date (YYYY-MM-DD)	2022-04-07
Name/Print	Karen A. LeCuyer	Registration Number	51928

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Privacy Act Statement

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9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Patent Application Fee Transmittal

Application Number:	16347283
Filing Date:	03-May-2019
Title of Invention:	FUNGICIDAL COMBINATIONS
First Named Inventor/Applicant Name:	Carlos Eduardo FABRI
Filer:	Karen A. LeCuyer/Nicholas Reginio
Attorney Docket Number:	UP20010US (FPAA06284)

Filed as Large Entity

Filing Fees for U.S. National Stage under 35 USC 371

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
RCE- 2ND AND SUBSEQUENT REQUEST	1820	1	2000	2000
		Total in USD ($)		**2000**

Electronic Acknowledgement Receipt

EFS ID:	45577855
Application Number:	16347283
International Application Number:	
Confirmation Number:	4341
Title of Invention:	FUNGICIDAL COMBINATIONS
First Named Inventor/Applicant Name:	Carlos Eduardo FABRI
Customer Number:	23413
Filer:	Karen A. LeCuyer/Nicholas Reginio
Filer Authorized By:	Karen A. LeCuyer
Attorney Docket Number:	UP20010US (FPAA06284)
Receipt Date:	27-APR-2022
Filing Date:	03-MAY-2019
Time Stamp:	16:12:09
Application Type:	U.S. National Stage under 35 USC 371

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$2000
RAM confirmation Number	E20224QG12412171
Deposit Account	061130
Authorized User	Nicholas Reginio

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

37 CFR 1.492 (National application filing, search, and examination fees)

37 CFR 1.21 (Miscellaneous fees and charges)

37 CFR 1.20 (Post Issuance fees)

37 CFR 1.19 (Document supply fees)

37 CFR 1.17 (Patent application and reexamination processing fees)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Request for Continued Examination (RCE)	8Z76186.PDF	1667134 a7a3db7494c7f0c3f5c523d5c77919b1c4c7aaf6	no	3
Warnings:					
Information:					
2	Information Disclosure Statement (IDS) Form (SB08)	8Z76213.PDF	1034483 b6ac39a88761b0fb5a1b702b704c62cab7c1155b	no	4
Warnings:					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	38020 d9ce3bccc46512349ce1ddf5a9f197e3a59c2219	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	2739637		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.
National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.
New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

NOTICE OF ALLOWANCE AND FEE(S) DUE

23413 7590 02/16/2022

CANTOR COLBURN LLP
20 Church Street
22nd Floor
Hartford, CT 06103

EXAMINER	
HAGHIGHATIAN, MINA	
ART UNIT	PAPER NUMBER
1616	

DATE MAILED: 02/16/2022

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/347,283	05/03/2019	Carlos Eduardo FABRI	UP20010US (FPAA06284)	4341

TITLE OF INVENTION: FUNGICIDAL COMBINATIONS

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$1200	$0.00	$0.00	$1200	05/16/2022

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the ENTITY STATUS shown above. If the ENTITY STATUS is shown as SMALL or MICRO, verify whether entitlement to that entity status still applies.

If the ENTITY STATUS is the same as shown above, pay the TOTAL FEE(S) DUE shown above.

If the ENTITY STATUS is changed from that shown above, on PART B - FEE(S) TRANSMITTAL, complete section number 5 titled "Change in Entity Status (from status indicated above)".

For purposes of this notice, small entity fees are 1/2 the amount of undiscounted fees, and micro entity fees are 1/2 the amount of small entity fees.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Maintenance fees are due in utility patents issuing on applications filed on or after Dec. 12, 1980. It is patentee's responsibility to ensure timely payment of maintenance fees when due. More information is available at www.uspto.gov/PatentMaintenanceFees.

PTOL-85 (Rev. 02/11)

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), by mail or fax, or via EFS-Web.

By mail, send to: Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

By fax, send to: (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

23413 7590 02/16/2022
CANTOR COLBURN LLP
20 Church Street
22nd Floor
Hartford, CT 06103

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

(Typed or printed name)

(Signature)

(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/347,283	05/03/2019	Carlos Eduardo FABRI	UP20010US (FPAA06284)	4341

TITLE OF INVENTION: FUNGICIDAL COMBINATIONS

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	$1200	$0.00	$0.00	$1200	05/16/2022

EXAMINER	ART UNIT	CLASS-SUBCLASS
HAGHIGHATIAN, MINA	1616	504-136000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

❑ Change of correspondence address (or Change of Correspondence Address form PTO/AIA/122 or PTO/SB/122) attached.

❑ "Fee Address" indication (or "Fee Address" Indication form PTO/AIA/47 or PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list
(1) The names of up to 3 registered patent attorneys or agents OR, alternatively, 1
(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. 2
3

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ❑ Individual ❑ Corporation or other private group entity ❑ Government

4a. Fees submitted: ❑ Issue Fee ❑ Publication Fee (if required) ❑ Advance Order - # of Copies _____

4b. Method of Payment: *(Please first reapply any previously paid fee shown above)*

❑ Electronic Payment via EFS-Web ❑ Enclosed check ❑ Non-electronic payment by credit card (Attach form PTO-2038)

❑ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. _____

5. **Change in Entity Status** (from status indicated above)

❑ Applicant certifying micro entity status. See 37 CFR 1.29

❑ Applicant asserting small entity status. See 37 CFR 1.27

❑ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

PTOL-85 Part B (08-18) Approved for use through 01/31/2020 OMB 0651-0033 U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/347,283	05/03/2019	Carlos Eduardo FABRI	UP20010US (FPAA06284)	4341

23413 7590 02/16/2022

CANTOR COLBURN LLP
20 Church Street
22nd Floor
Hartford, CT 06103

EXAMINER	
HAGHIGHATIAN, MINA	

ART UNIT	PAPER NUMBER
1616	

DATE MAILED: 02/16/2022

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(Applications filed on or after May 29, 2000)

The Office has discontinued providing a Patent Term Adjustment (PTA) calculation with the Notice of Allowance.

Section 1(h)(2) of the AIA Technical Corrections Act amended 35 U.S.C. 154(b)(3)(B)(i) to eliminate the requirement that the Office provide a patent term adjustment determination with the notice of allowance. See Revisions to Patent Term Adjustment, 78 Fed. Reg. 19416, 19417 (Apr. 1, 2013). Therefore, the Office is no longer providing an initial patent term adjustment determination with the notice of allowance. The Office will continue to provide a patent term adjustment determination with the Issue Notification Letter that is mailed to applicant approximately three weeks prior to the issue date of the patent, and will include the patent term adjustment on the patent. Any request for reconsideration of the patent term adjustment determination (or reinstatement of patent term adjustment) should follow the process outlined in 37 CFR 1.705.

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

OMB Clearance and PRA Burden Statement for PTOL-85 Part B

The Paperwork Reduction Act (PRA) of 1995 requires Federal agencies to obtain Office of Management and Budget approval before requesting most types of information from the public. When OMB approves an agency request to collect information from the public, OMB (i) provides a valid OMB Control Number and expiration date for the agency to display on the instrument that will be used to collect the information and (ii) requires the agency to inform the public about the OMB Control Number's legal significance in accordance with 5 CFR 1320.5(b).

The information collected by PTOL-85 Part B is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450. Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Notice of Allowability

Application No.	Applicant(s)	
16/347,283	FABRI et al.	
Examiner	**Art Unit**	**AIA (FITF) Status**
Mina Haghighatian	1616	Yes

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☑ This communication is responsive to 12/14/21.
   ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

3. ☑ The allowed claim(s) is/are 1 and 9-17. As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see **http://www.uspto.gov/patents/init_events/pph/index.jsp** or send an inquiry to **PPHfeedback@uspto.gov.**

4. ☑ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   Certified copies:

   a) ☑ All b) ☐ Some* c) ☐ None of the:

   1. ☐ Certified copies of the priority documents have been received.
   2. ☐ Certified copies of the priority documents have been received in Application No. _____.
   3. ☑ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☑ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____.
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material _____.
4. ☐ Interview Summary (PTO-413), Paper No./Mail Date. _____.
5. ☐ Examiner's Amendment/Comment
6. ☑ Examiner's Statement of Reasons for Allowance
7. ☐ Other _____.

/MINA HAGHIGHATIAN/
Primary Examiner, Art Unit 1616

DETAILED ACTION

Notice of Pre-AIA or AIA Status

The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the **AIA**.

Receipt is acknowledged of Remarks, Terminal Disclaimer and an IDS filed on 12/14/21. No claims have been amended. Claims **1 and 9-17** remain pending and under examination on the merits.

Terminal Disclaimer

The terminal disclaimer filed on 12/14/21 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of listed patents has been reviewed and is accepted. The terminal disclaimer has been **recorded**.

Reasons for Allowance

The following is an examiner's statement of reasons for allowance: the claims are drawn to a fungicidal combination consisting of benzovindiflupyr, mancozeb and at least another fungicide selected form an ergosterol biosynthesis inhibitor fungicide and a quinone outside inhibitor fungicide. A Markush listing of the said ergosterol biosynthesis inhibitor fungicide and a quinone outside inhibitor fungicide is provided.

The references of record, while teaching a composition comprising of the said fungicides or a combination thereof, do not recognize or fairly suggest a combination consisting of the said fungicides. In other words, the references teach compositions comprising fungicides that are excluded by the examined claims. Based on the

teachings of the prior art. One of ordinary skill in the art is not given a motivation to exclude the required fungicides to arrive at the claimed combination.

Claims 1 and 9-17 are allowed.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mina Haghighatian whose telephone number is (571)272-0615. The examiner can normally be reached M-F, 7-5 EST.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at http://www.uspto.gov/interviewpractice.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sue Liu can be reached on 571-272-5539. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of published or unpublished applications may be obtained from Patent Center. Unpublished application information in Patent Center is available to registered users. To file and manage patent submissions in Patent Center, visit: https://patentcenter.uspto.gov. Visit https://www.uspto.gov/patents/apply/patent-

center for more information about Patent Center and

https://www.uspto.gov/patents/docx for information about filing in DOCX format. For

additional questions, contact the Electronic Business Center (EBC) at 866-217-9197

(toll-free). If you would like assistance from a USPTO Customer Service

Representative, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Mina Haghighatian/

Mina Haghighatian
Primary Examiner
Art Unit 1616

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/347,283	FABRI et al.
	Examiner	**Art Unit**
	Mina Haghighatian	1616

CPC									
Symbol								**Type**	**Version**
A01N	/	47	/	14				F	2013-01-01
A01N	/	37	/	36				I	2013-01-01
A01N	/	43	/	16				I	2013-01-01
A01N	/	43	/	40				I	2013-01-01
A01N	/	43	/	54				I	2013-01-01
A01N	/	43	/	56				I	2013-01-01
A01N	/	43	/	60				I	2013-01-01
A01N	/	43	/	653				I	2013-01-01
A01N	/	45	/	02				I	2013-01-01

CPC Combination Sets										
Symbol								**Type**	**Set**	**Ranking**	**Version**
A01N	/	47	/	14				I	1	1	2013-01-01
A01N	/	43	/	40				I	1	2	2013-01-01
A01N	/	43	/	54				I	1	3	2013-01-01
A01N	/	43	/	56				I	1	4	2013-01-01
A01N	/	43	/	653				I	1	5	2013-01-01
A01N	/	45	/	02				I	1	6	2013-01-01
A01N	/	43	/	40				I	2	1	2013-01-01
A01N	/	43	/	54				I	2	2	2013-01-01
A01N	/	43	/	653				I	2	3	2013-01-01
A01N	/	43	/	653				I	3	1	2013-01-01
A01N	/	43	/	54				I	3	2	2013-01-01
A01N	/	45	/	02				I	4	1	2013-01-01
A01N	/	43	/	56				I	4	2	2013-01-01
A01N	/	43	/	653				I	4	3	2013-01-01
A01N	/	43	/	56				I	5	1	2013-01-01
A01N	/	43	/	54				I	5	2	2013-01-01
A01N	/	43	/	653				I	5	3	2013-01-01

NONE		**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	10	
/MINA HAGHIGHATIAN/ Primary Examiner, Art Unit 1616	03 February 2022	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	------

U.S. Patent and Trademark Office — Part of Paper No.: 20220203

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/347,283	FABRI et al.
	Examiner	Art Unit
	Mina Haghighatian	1616

INTERNATIONAL CLASSIFICATION				
CLAIMED				
A01N	/	47	/	14
A01N	/	37	/	36
A01N	/	43	/	16
A01N	/	43	/	40
A01N	/	43	/	54
A01N	/	43	/	56
A01N	/	43	/	60
A01N	/	43	/	653
A01N	/	45	/	02

NON-CLAIMED				
	/		/	

US ORIGINAL CLASSIFICATION	
CLASS	SUBCLASS

CROSS REFERENCES(S)						
CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)					

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	10	
/MINA HAGHIGHATIAN/ Primary Examiner, Art Unit 1616	03 February 2022	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	------

U.S. Patent and Trademark Office — Part of Paper No.: 20220203

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/347,283	FABRI et al.
	Examiner	**Art Unit**
	Mina Haghighatian	1616

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☑ T.D. ☐ R.1.47

CLAIMS

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
1	1	10	17												
2	9														
3	10														
4	11														
5	12														
6	13														
7	14														
8	15														
9	16														

NONE		**Total Claims Allowed:**	
(Assistant Examiner)	(Date)	10	
/MINA HAGHIGHATIAN/ Primary Examiner, Art Unit 1616	03 February 2022	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	------

U.S. Patent and Trademark Office — Part of Paper No.: 20220203

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/347,283	FABRI et al.
	Examiner	Art Unit
	Mina Haghighatian	1616

CPC - Searched*		
Symbol	Date	Examiner
A01N 47/14	02/03/2022	MH
A01N 37/36	02/03/2022	MH
A01N 43/16	02/03/2022	MH
A01N 43/40	02/03/2022	MH
A01N 43/54	02/03/2022	MH
A01N 43/56	02/03/2022	MH
A01N 43/60	02/03/2022	MH
A01N 43/653	02/03/2022	MH
A01N 45/02	02/03/2022	MH

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes		
Search Notes	Date	Examiner

/MINA HAGHIGHATIAN/
Primary Examiner, Art Unit 1616

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/347,283	FABRI et al.
	Examiner	Art Unit
	Mina Haghighatian	1616

WEST- Text and Inventor names searched	08/14/2020	mh
NPL-Text and Inventor names searched	08/14/2020	mh
Google patent search	08/14/2020	mh
Google scholar search	08/14/2020	mh
Global dossier	08/14/2020	mh
Espacnet search	08/14/2020	mh
Foreign patent finder	08/14/2020	mh
PALM- Inventor names search	08/14/2020	mh
IDS considered	08/14/2020	mh
WEST search update	08/17/2020	mh
WESTsearch update	08/17/2020	mh
WEST- Text and Inventor names searched	01/14/2021	MH
NPL-Text and Inventor names searched	01/14/2021	MH
WEST search updated	01/14/2021	MH
WEST- Text, inventor names searched	01/14/2021	MH
WEST- Text, classification searched	01/14/2021	MH
Google scholar search	01/14/2021	MH
Google patent search	01/15/2021	MH
Foreign patent finder	01/15/2021	MH
WEST-copending patents and applications searched	01/15/2021	MH
WEST text, classification and inventor names search	06/07/2021	mh
Google scholar search	06/07/2021	mh
Google patent search	06/07/2021	mh
Espacenet search	06/07/2021	mh
Global dossier	06/07/2021	mh
IDS considered	06/08/2021	mh
PALM- Inventor names search	06/07/2021	mh
All above searches updated	02/03/2022	MH

/MINA HAGHIGHATIAN/
Primary Examiner, Art Unit 1616

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/347,283	FABRI et al.
	Examiner	Art Unit
	Mina Haghighatian	1616

Interference Search			
US Class/CPC Symbol	**US Subclass/CPC Group**	**Date**	**Examiner**
A01N	47/14; 37/36; 43/16; 43/40; 43/54; 43/56; 43/56; 43/653	02/03/2022	MH

/MINA HAGHIGHATIAN/
Primary Examiner, Art Unit 1616

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (02-18)
Approved for use through 11/30/2020. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	16347283
Filing Date	2019-05-03
First Named Inventor	Carlos Eduardo FABRI
Art Unit	1616
Examiner Name	Mina Haghighatian
Attorney Docket Number	UP20010US

U.S.PATENTS

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Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
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U.S.PATENT APPLICATION PUBLICATIONS

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Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	20100216640	A1	2010-08-26	TOBLER ET AL	

If you wish to add additional U.S. Published Application citation information please click the Add button. Add

FOREIGN PATENT DOCUMENTS

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Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2]	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
	1	101222847	CN	A	2008-07-16	BASF AG	w/English Abstract	
	2	101677558	CN	A	2010-03-24	SYNGENTA PARTICIPATIONS AG	w/English Abstract	
	3	102258039	CN	A	2011-11-30	SHAANXI MEIBANG PESTICIDE CO LTD	w/English Abstract	

EFS Web 2.1.18

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /M.H/

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Application Number	16347283
Filing Date	2019-05-03
First Named Inventor	Carlos Eduardo FABRI
Art Unit	1616
Examiner Name	Mina Haghighatian
Attorney Docket Number	UP20010US

4	102835407	CN	A	2012-12-26	CHANG HUA	w/English Abstract
5	105744834	CN	A	2016-07-06	UPL LTD	w/English Abstract
6	2008095913	WO	A2	2008-08-18	BASF SE	
7	2969545	CA	A1	2016-06-16	UPL LTD	

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NON-PATENT LITERATURE DOCUMENTS |Remove|

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
	1		

If you wish to add additional non-patent literature document citation information please click the Add button | Add |

EXAMINER SIGNATURE

Examiner Signature	/MINA HAGHIGHATIAN/	Date Considered	02/03/2022

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

EFS Web 2.1.18

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /M.H/

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	16347283
Filing Date	2019-05-03
First Named Inventor	Carlos Eduardo FABRI
Art Unit	1616
Examiner Name	Mina Haghighatian
Attorney Docket Number	UP20010US

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

☒ The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Karen A. LeCuyer/	Date (YYYY-MM-DD)	2021-12-14
Name/Print	Karen A. LeCuyer	Registration Number	51928

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /M.H/

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1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these record s.

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5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /M.H/

Web Search History

date, time	web site	search string
2/3/2022 1:30:34 PM	Google Scholar	mancozeb fungicide combination inhibitor azoxystrobin
2/3/2022 1:30:34 PM	Google Patents	**Keyword Group 1** [mancozeb] **Keyword Group 2** [fungicide] **Keyword Group 3** [combination] **Keyword Group 4** [inhibitor] **Keyword Group 5** [azoxystrobin] **Before** Priority Date: priority:20161104
2/3/2022 1:30:40 PM	Google Patents	**Keyword Group 1** [~patent/US20190274307A1]
2/3/2022 1:33:43 PM	Google	google patents
2/3/2022 1:33:52 PM	Google Scholar	google scholar
2/3/2022 1:33:52 PM	Google	google scholar
2/3/2022 1:34:11 PM	Google Scholar	benzovindiflupyr mancozeb azaconazole azoxystrobin
2/3/2022 1:34:50 PM	Google Scholar	benzovindiflupyr AND mancozeb AND azaconazole AND azoxystrobin [before:2015]
2/3/2022 1:34:56 PM	Google Scholar	benzovindiflupyr AND mancozeb AND azaconazole AND azoxystrobin

Refine Search

Search Results

Terms	Documents
L16 benzovindiflupyr	6

Database:
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Derwent World Patents Index
IBM Technical Disclosure Bulletin Database
Foreign Patent Retrieval

Search Type: (•) Prior Art ( ) Interference

Search: L17 Refine Search

Order By: (•) Date ( ) Hits

Recall Text Clear Interrupt

Search History

DATE: Thursday, February 03, 2022 Purge Queries Printable Copy Create Case

Order By	Set Name Side by Side	Query	Hit Count	Set Name Result Set	Set Name Grid	Set Name Classification
Prior Art Searches						
		DB=PGPB; PLUR=YES; OP=AND				
Date	L1	20100216640	1	L1	L1	L1
		DB=PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD,FPRS; PLUR=YES; OP=AND				
Date	L2	benzovindiflupyr mancozeb azaconazole azoxystrobin	1155	L2	L2	L2
Date	L3	L2 fungicide	1088	L3	L3	L3
Date	L4	benzovindiflupyr same mancozeb azaconazole same azoxystrobin fungicide	643	L4	L4	L4

Date	L5	L4 prothioconazole same azoxystrobin	590	L5	L5	L5
Date	L6	A01N 47/14	53	L6	L6	L6
Date	L7	L6 A01N 37/36	1	L7	L7	L7
Date	L8	L6 A01N 43/40	8	L8	L8	L8
Date	L9	L6 A01N 43/54	6	L9	L9	L9
Date	L10	L6 A01N 43/56	5	L10	L10	L10
Date	L11	L6 A01N 43/60	1	L11	L11	L11
Date	L12	L6 A01N 45/02	1	L12	L12	L12
	DB=PGPB,USPT; PLUR=YES; OP=AND					
Date	L13	fabri.inv.	307	L13	L13	L13
Date	L14	L13 near3 carlos	20	L14	L14	L14
Date	L15	L14 Shroff.inv.	17	L15	L15	L15
Date	L16	L15 benzovindiflupyr	6	L16	L16	L16
Date	L17	L16 benzovindiflupyr	6	L17	L17	L17

END OF SEARCH HISTORY

Espacenet

Result list

1 result found for pn=US2019274307A1
Results to 1 displayed
Query language: en / de / fr
Sort by: Relevance

1. FUNGICIDAL COMBINATIONS

Title	Inventors	Applicants	Publication number	Earliest priority	IPC	CPC	Publication date	Earliest publication	Family number
FUNGICIDAL COMBINATIONS	FABRI CARLOS EDUARDO [BR] SHROFF RAJJU DEVIDAS [IN] SHROFF JAIDEV RAJNIKANT [AE] SHROFF VIKRAM RAJNIKANT [AE]	UPL LTD [IN]	US2019274307A1	2016-11-04	A01N37/36 A01N43/16 A01N43/40 A01N43/54 A01N43/56 A01N43/60 A01N43/653 A01N47/14	A01N37/36 (US) A01N43/16 (US) A01N43/40 (EP,KR,US) A01N43/54 (US) A01N43/56 (EP,KR,US) A01N43/60 (US) A01N43/653 (EP,KR,US) A01N45/02 (EP,KR,US) A01N47/14 (EP,KR,US) A01N43/40, A01N43/54, A01N43/653, INV (EP,US) A01N43/56, A01N43/54, A01N43/653, INV (EP,US) A01N43/653, A01N43/54, INV (EP,US) A01N45/02, A01N43/56, A01N43/653, INV (EP,US) A01N47/14, A01N43/40, A01N43/54, A01N43/56, A01N43/653, A01N45/02, INV (EP,US)	2019-09-12	2018-03-23	062075890

Global Dossier

Office

US

Type

Pre-grant Publication

20190274307

0 1

US 20190274307 24 Members in Patent Family (6 currently shown) 0

IP Office Type

All IP5 Offices
- EPO
- SIPO
- KIPO
- JPO
- USPTO

Non-IP5 Offices

	Office	Application	Applicant	Title	App. Date	Priority #	Pub. #	Pub. Date
	KR	20197013280 View Dossier	1) UPL LIMITED,	FUNGICIDAL COMBINATIONS	10/30/2017	IN 201631037704 IB 2017056710	KR 20190082218 A	07/09/2019
	US	16347283 View Dossier			10/30/2017	IN 201631037704 IB 2017056710	US 20190274307 A1	09/12/2019
	JP	2019522363 View Dossier	1) You PL Limited, 2) Patent business corporation Washida & Associates,	COMBINATIONS OF ANTIFUNGAL AGENTS	10/30/2017	IN 201631037704 IB 2017056710	JP 2019533683 A	11/21/2019
	EP	17867258 View Dossier	1) UPL Ltd,	FUNGICIDAL COMBINATIONS	10/30/2017	IN 201631037704 IB 2017056710	EP 3534711 A1 EP 3534711 A4	09/11/2019 11/18/2020
	CN	201780068179 View Dossier	1) UPL LTD.,	FUNGICIDAL COMBINATIONS	10/30/2017	IN 201631037704 IB 2017056710	CN 109906034 A	06/18/2019
	US	17130193 View Dossier	1) FABRI, Carlos Eduardo 2) SHROFF, Rajju Devidas 3) SHROFF, Jaidev Rajnikant 4) SHROFF, Vikram Rajnikant	FUNGICIDAL COMBINATIONS	12/22/2020	US 16347283 US 17130193 IN 201631037704 IB 2017056710	US 20210106006 A1	04/15/2021

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Sale Item Reference Number	Effective Date
16347283	05/03/2019

Document Number	Fee Code	Fee Code Description	Amount Paid	Payment Method
I2021BM822321599	1201	INDEPENDENT CLAIMS IN EXCESS OF 3	$460.00	Deposit Account

Application Number	Application/Control No.	Applicant(s)/Patent under Reexamination
* 16/347,283 *	16/347,283	FABRI et al.
	Examiner	**Art Unit**
	HAGHIGHATIAN, MINA	1616

Document Code - DISQ	**Internal Document - DO NOT MAIL**

TERMINAL DISCLAIMER	☑ APPROVED	☐ DISAPPROVED
Date Filed: **14 December 2021**	**This patent is subject to a Terminal Disclaimer**	

Approved/Disapproved by:
/LAWANA R HIXON/
Technology Center: OPLC
Telephone: (571)272-6074

PTO/SB/08a (02-18)
Approved for use through 11/30/2020. OMB 0651-0031
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	16347283
Filing Date	2019-05-03
First Named Inventor	Carlos Eduardo FABRI
Art Unit	1616
Examiner Name	Mina Haghighatian
Attorney Docket Number	UP20010US

U.S.PATENTS

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	1	20100216640	A1	2010-08-26	TOBLER ET AL	

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	1	101222847	CN	A	2008-07-16	BASF AG	w/English Abstract	
	2	101677558	CN	A	2010-03-24	SYNGENTA PARTICIPATIONS AG	w/English Abstract	
	3	102258039	CN	A	2011-11-30	SHAANXI MEIBANG PESTICIDE CO LTD	w/English Abstract	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	16347283
Filing Date	2019-05-03
First Named Inventor	Carlos Eduardo FABRI
Art Unit	1616
Examiner Name	Mina Haghighatian
Attorney Docket Number	UP20010US

4	102835407	CN	A	2012-12-26	CHANG HUA	w/English Abstract
5	105744834	CN	A	2016-07-06	UPL LTD	w/English Abstract
6	2008095913	WO	A2	2008-08-18	BASF SE	
7	2969545	CA	A1	2016-06-16	UPL LTD	

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Examiner Signature		Date Considered	

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	16347283
Filing Date	2019-05-03
First Named Inventor	Carlos Eduardo FABRI
Art Unit	1616
Examiner Name	Mina Haghighatian
Attorney Docket Number	UP20010US

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

☒ The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Karen A. LeCuyer/	Date (YYYY-MM-DD)	2021-12-14
Name/Print	Karen A. LeCuyer	Registration Number	51928

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these record s.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

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Electronic Patent Application Fee Transmittal

Application Number:	16347283
Filing Date:	03-May-2019
Title of Invention:	FUNGICIDAL COMBINATIONS
First Named Inventor/Applicant Name:	Carlos Eduardo FABRI
Filer:	Karen A. LeCuyer/Nicholas Reginio
Attorney Docket Number:	UP20010US (FPAA06284)

Filed as Large Entity

Filing Fees for U.S. National Stage under 35 USC 371

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Extension - 3 months with $0 paid	1253	1	1480	1480
Miscellaneous:				
SUBMISSION- INFORMATION DISCLOSURE STMT	1806	1	260	260
STATUTORY OR TERMINAL DISCLAIMER	1814	1	170	170
		Total in USD ($)		**1910**

Electronic Acknowledgement Receipt

EFS ID:	44510019
Application Number:	16347283
International Application Number:	
Confirmation Number:	4341
Title of Invention:	FUNGICIDAL COMBINATIONS
First Named Inventor/Applicant Name:	Carlos Eduardo FABRI
Customer Number:	23413
Filer:	Karen A. LeCuyer/Nicholas Reginio
Filer Authorized By:	Karen A. LeCuyer
Attorney Docket Number:	UP20010US (FPAA06284)
Receipt Date:	14-DEC-2021
Filing Date:	03-MAY-2019
Time Stamp:	12:54:23
Application Type:	U.S. National Stage under 35 USC 371

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$1910
RAM confirmation Number	E2021BDC54494026
Deposit Account	061130
Authorized User	Nicholas Reginio

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

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37 CFR 1.21 (Miscellaneous fees and charges)

37 CFR 1.492 (National application filing, search, and examination fees)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Amendment/Req. Reconsideration-After Non-Final Reject	8V45510.pdf	79108 d64e1b915919ba7eb5e1ea5ab21dac211af79431	no	7

Warnings:

Information:

2	Terminal Disclaimer Filed	8V45488.pdf	74680 a5d774ec24b0cded672a57771b8dc1804c256740	no	2

Warnings:

Information:

3	Information Disclosure Statement (IDS) Form (SB08)	8UP6008.PDF	1034804 937387e6506b3e5b2fa585ec6473670f6225b716	no	4

Warnings:

Information:

4	Foreign Reference	8UP5918.PDF	3045549 48237e0e8d846bb45553ffd499fd2c4134ada24a	no	29

Warnings:

Information:

5	Foreign Reference	8UP5915.PDF	7399018 31444e1a6349c94dde95889c689b110204cc6044	no	108

Warnings:

Information:

6	Foreign Reference	8UP5912.PDF	1897026 9257f7c9d36ea5dcdbf92cf6e9ef36f752ef24b3	no	19

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			447101		
7	Foreign Reference	8UP5910.PDF	2657c0332ef7e94b325231ecb5aa03afaac96cb4	no	6

Warnings:

Information:

			2317211		
8	Foreign Reference	8UP5907.PDF	ec7bc93955f89ba75e6d3143f31d402f7a777b2a	no	18

Warnings:

Information:

			6143682		
9	Foreign Reference	8UP4823.PDF	8b933a79178026a86cd79009a70c472ee7a023b4	no	102

Warnings:

Information:

			492519		
10	Foreign Reference	8UP5441.PDF	c9a05094c98ff88098d6916c847cf19622ad573c	no	7

Warnings:

Information:

			43005		
11	Fee Worksheet (SB06)	fee-info.pdf	dc56640b7b78dc75cce69f4dc42ddcea59cc6ccf	no	2

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If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.
National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.
New International Application Filed with the USPTO as a Receiving Office
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	UPL LTD	)
		) Group Art Unit: 1616
Serial No.:	16/347,283	)
		) Examiner: Mina Haghighatian
Filed:	05/03/2019	)
		) Confirmation No.: 4341
For:	FUNGICIDAL COMBINATIONS	)

VIA ELECTRONIC FILING
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

TERMINAL DISCLAIMER TO OBVIATE A DOUBLE PATENTING REJECTION OVER A PRIOR PATENT

Sir:

This Terminal Disclaimer is submitted in response to the Office Action dated June 14, 2021.

Owner of Record: UPL LTD

The above-identified owner of record of 100 percent interest in the instant application hereby disclaims, except as provided below, the terminal part of the statutory term of any patent granted in the instant application, which would extend beyond the expiration date of the full statutory term defined in 35 U.S.C. 154 and 173, as presently shortened by any terminal disclaimer, of prior Patent Nos. US10, 694,744, US10,362,782, US10,537,101, US10,694,745 and US10,448,636. The owner hereby agrees that any patent so granted on the instant application shall be enforceable only for and during such period that it and the prior patent are commonly owned. This agreement runs with any patent granted on the instant application and is binding upon the grantee, its successors and/or assigns.

In making the above disclaimer, the owner does not disclaim the terminal part of any patent granted on the instant application that would extend to the expiration date of the full statutory term as defined in 35 U.S.C. 154 and 173 of the prior patent, as presently shortened by any terminal disclaimer, in the event that it later expires for failure to pay a maintenance fee, is held unenforceable, is found invalid by a court of competent jurisdiction, is statutorily disclaimed in whole or terminally disclaimed under 37 C.F.R. 1.321, has all claims cancelled by a reexamination certificate, is reissued, or is in any manner terminated prior to the expiration of it full statutory term as presently shortened by any terminal disclaimer.

Check either 1 or 2 below, if appropriate.

1. _____ For submissions on behalf of an organization (e.g., corporation, partnership, university, government agency, etc.), the undersigned is empowered to act on behalf of the organization.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

2. ___X___ The undersigned is an attorney of record.

The Terminal Disclaimer fee under 37 C.F.R. 1.20(d) is included. If there are any additional charges with respect to this Terminal Disclaimer or otherwise, please charge them to Deposit Account No. 06-1130.

Respectfully submitted,

CANTOR COLBURN LLP

/Karen A. LeCuyer/

By _____ ___
Karen A. LeCuyer
Registration No. 51,928

Date: December 14, 2021
CANTOR COLBURN LLP
20 Church Street, 22nd Floor
Hartford, CT 06103
Telephone (860) 286-2929
Facsimile (860) 286-0115
Customer No.: 173180

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Named Inventor:	Carlos Eduardo Fabri	) Group Art Unit: 1616
Serial No.:	16/347,283	) Examiner: Mina Haghighatian
Filed:	05/03/2019	) Confirmation No.: 4341
For:	FUNGICIDAL COMBINATIONS	)

VIA ELECTRONIC FILING
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

AMENDMENT

Sir:

This Amendment is submitted in response to the Office Action dated June 14, 2021. A three month extension of time to reply to December 14, 2021 is requested herewith. Please amend the Application as follows:

IN THE CLAIMS

1. (Previously Presented) A fungicidal combination consisting of benzovindiflupyr, mancozeb, and at least another fungicide selected from an ergosterol biosynthesis inhibitor fungicide, and a quinone outside inhibitor fungicide,

wherein the ergosterol biosynthesis inhibitor is selected from azaconazole, bitertanol, bromuconazole, cyproconazole, difenoconazole, diniconazole, epoxiconazole, etaconazole, fenbuconazole, fluquinconazole, flusilazole, flutriafol, hexaconazole, imibenconazole, ipconazole, metconazole, myclobutanil, penconazole, propiconazole, simeconazole, tebuconazole, tetraconazole, triadimefon, triadimenol, triticonazole, prothioconazole, imazalil, oxpoconazole, pefurazoate, prochloraz, triflumizole, fenarimol, nuarimol, pyrifenox , pyrisoxazole, triforine, and mixtures thereof; and

wherein the quinone outside inhibitor fungicide is selected from azoxystrobin, coumoxystrobin, enoxastrobin, flufenoxystrobin, picoxystrobin, pyraoxystrobin, mandestrobin, pyraclostrobin, pyrametostrobin, triclopyricarb, kresoxim-methyl, dimoxystrobin, fenaminostrobin, metominostrobin, trifloxystrobin, famoxadone, fluoxastrobin, fenamidone, pyribencarb, and mixtures thereof.

2. (Cancelled)

3. (Cancelled)

4. (Cancelled)

5. (Cancelled)

6. (Cancelled)

7. (Cancelled)

8. (Cancelled)

9. (Previously Presented) A fungicidal combination consisting of benzovindiflupyr, mancozeb, an ergosterol biosynthesis inhibitor fungicide, and a quinone outside inhibitor fungicide,

wherein the ergosterol biosynthesis inhibitor is selected from azaconazole, bitertanol, bromuconazole, cyproconazole, difenoconazole, diniconazole, epoxiconazole, etaconazole, fenbuconazole, fluquinconazole, flusilazole, flutriafol, hexaconazole, imibenconazole, ipconazole, metconazole, myclobutanil, penconazole, propiconazole, simeconazole, tebuconazole, tetraconazole, triadimefon, triadimenol, triticonazole, prothioconazole, imazalil, oxpoconazole, pefurazoate, prochloraz, triflumizole, fenarimol, nuarimol, pyrifenox , pyrisoxazole, triforine, and mixtures thereof; and

wherein the quinone outside inhibitor fungicide is selected from azoxystrobin, coumoxystrobin, enoxastrobin, flufenoxystrobin, picoxystrobin, pyraoxystrobin, mandestrobin, pyraclostrobin, pyrametostrobin, triclopyricarb, kresoxim-methyl, dimoxystrobin, fenaminostrobin, metominostrobin, trifloxystrobin, famoxadone, fluoxastrobin, fenamidone, pyribencarb, and mixtures thereof.

10. (Previously Presented) The combination as claimed in claim 1, wherein the at least another fungicide is cyproconazole, difenoconazole, epoxiconazole, hexaconazole, hexaconazole, tebuconazole, tetraconazole, prothioconazole, azoxystrobin, picoxystrobin, pyraclostrobin, kresoxim-methyl, trifloxystrobin, or a combination thereof.

11. (Previously Presented) The combination as claimed in claim 1, wherein the at least another fungicide is prothioconazole and/or azoxystrobin.

12. (Previously Presented) A composition consisting of:

at least one agrochemically acceptable excipient; and

a fungicidal combination of:

(a) benzovindiflupyr;

(b) mancozeb; and

(c) at least one ergostrol biosynthesis inhibitor and/or at least one quinone outside inhibitor;

wherein the ergosterol biosynthesis inhibitor is selected from azaconazole, bitertanol, bromuconazole, cyproconazole, difenoconazole, diniconazole, epoxiconazole, etaconazole, fenbuconazole, fluquinconazole, flusilazole, flutriafol, hexaconazole, imibenconazole, ipconazole, metconazole, myclobutanil, penconazole, propiconazole, simeconazole, tebuconazole, tetraconazole, triadimefon, triadimenol, triticonazole, prothioconazole, imazalil, oxpoconazole, pefurazoate, prochloraz, triflumizole, fenarimol, nuarimol, pyrifenox , pyrisoxazole, triforine, and mixtures thereof; and

wherein the quinone outside inhibitor fungicide is selected from azoxystrobin, coumoxystrobin, enoxastrobin, flufenoxystrobin, picoxystrobin, pyraoxystrobin, mandestrobin, pyraclostrobin, pyrametostrobin, triclopyricarb, kresoxim-methyl, dimoxystrobin, fenaminostrobin, metominostrobin, trifloxystrobin, famoxadone, fluoxastrobin, fenamidone, pyribencarb, and mixtures thereof.

13. (Previously Presented) The composition as claimed in claim 12, wherein the composition is formulated into wettable powders, granules, dusts, soluble (liquid) concentrates, suspension concentrates, oil in water emulsion, water in oil emulsion, emulsifiable concentrates, capsule suspensions, a combination of a suspension concentrate (SC) and a capsule suspension (CS), or oil dispersions.

14. (Previously Presented) The combination as claimed in claim 1, wherein the benzovindiflupyr and mancozeb are admixed in ratio of 1:80 to 80:1

15. (Previously Presented) The composition as claimed in claim 12, wherein the total amount of benzovinidiflupyr in the composition is in the range of 0.1 to 99% by weight, the total amount of mancozeb in the composition is in the range of 0.1 to 99% by weight; the total amount of ergostrol biosynthesis inhibitor in the composition is in the range of 0.1 to 99% by weight; and the total amount of quinone outside inhibitor in the composition is in the range of 0.1 to 99% by weight.

16. (Previously Presented) A method of foliar application, consisting of applying the combination of claim 1 to the foliage of a plant.

17. (Previously Presented) A method of controlling fungal diseases in plants consisting of , applying to the locus of the plant a combination consisting of:

(a) benzovindiflupyr;

(b) at least one quinone outside inhibitor and/or at least one ergostrol biosynthesis inhibitor; and

(c) mancozeb,

wherein the ergosterol biosynthesis inhibitor is selected from azaconazole, bitertanol, bromuconazole, cyproconazole, difenoconazole, diniconazole, epoxiconazole, etaconazole, fenbuconazole, fluquinconazole, flusilazole, flutriafol, hexaconazole, imibenconazole, ipconazole, metconazole, myclobutanil, penconazole, propiconazole, simeconazole, tebuconazole, tetraconazole, triadimefon, triadimenol, triticonazole, prothioconazole, imazalil, oxpoconazole, pefurazoate, prochloraz, triflumizole, fenarimol, nuarimol, pyrifenox , pyrisoxazole, triforine, and mixtures thereof; and

wherein the quinone outside inhibitor fungicide is selected from azoxystrobin, coumoxystrobin, enoxastrobin, flufenoxystrobin, picoxystrobin, pyraoxystrobin, mandestrobin, pyraclostrobin, pyrametostrobin, triclopyricarb, kresoxim-methyl, dimoxystrobin, fenaminostrobin, metominostrobin, trifloxystrobin, famoxadone, fluoxastrobin, fenamidone, pyribencarb, and mixtures thereof.

REMARKS

Claims 1 and 9-17 are pending in the present Application. No claims are added, cancelled or amended.

Reconsideration and allowance of the claims are respectfully requested in view of the above amendments and the following remarks.

Double Patenting

Claims 1 and 9-17 stand provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-7 of U.S. Patent No. 10,694,744 to Oliveira et al. (herainfter "Oliveira '744") in view of United States Patent Publication No. 20150181870 to Kemmitt et al. (hereinafter "Kemmitt").

Claims 1 and 9-17 stand provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-12 of U.S. Patent No. 10,362,782 to Oliveira et al. (hereinafter "Oliveira '782") in view of Kemmitt.

Claims 1, 12 and 16-17 stand provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 10,537,101 to Oliveira (hereinafter "Oliveira '101") in view of Kemmitt.

Claims 1, 12 and 16-17 stand provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-12 of U.S. Patent No. 10,694,745 to Oliveira et al. (hereinafter "Oliveira '745") in view of Kemmitt.

Claims 1, 12 and 16-17 stand provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 10,448,636 to Oliveira (hereinafter "Oliveira '636") in view of Kemmitt.

A Terminal Disclaimer to US10,694,744; US10,362,782; US10,537,101; US10,694,745, and US10,448,636 has been submitted.

Claims 1 and 9-17 stand provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-6 of copending Application Serial No. 16/785,313 (United States Patent Publication No. 2020/0170251 A1 to Oliveira et al., hereinafter "Oliveira '313").

As neither case has been issued or allowed, the claims are not final in both cases. It therefore not possible to make any determination as to double patenting or obviousness at this time. Hence, it is requested that this rejection be held in abeyance at least until the present claims are allowed and the '313 case has issued. MPEP § 804.01.I(B)(1).

In addition, Oliveira '313 has claims that do not require mancozeb and require a copper compound. The present claims used "consisting" transitional language, require mancozeb, and do not include a copper compound.

Reconsideration and withdrawal of the rejection are required.

It is believed that the foregoing amendments and remarks fully comply with the Office Action and that the claims herein should now be allowable to Applicants. No new matter has been introduced by this amendment. Accordingly, reconsideration and allowance are requested.

If there are any additional charges with respect to this Amendment or otherwise, including for any necessary extensions of time under 37 C.F.R. 1.136(a) or 1.136(b), for which the Applicants hereby respectfully petition, please charge them to Deposit Account No. 06-1130.

Respectfully submitted,
CANTOR COLBURN LLP

/Karen A. LeCuyer /

By: _____
Karen A. LeCuyer
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Date: December 14, 2021

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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 16/347,283	Filing Date 05/03/2019	☐ To be Mailed

ENTITY: ☑ LARGE ☐ SMALL ☐ MICRO

APPLICATION AS FILED - PART I

	(Column 1)	(Column 2)			
FOR	NUMBER FILED	NUMBER EXTRA		RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A		N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A		N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*		x $100 =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*		x $460 =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).				
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))					
* If the difference in column 1 is less than zero, enter "0" in column 2.				TOTAL	

APPLICATION AS AMENDED - PART II

		(Column 1)		(Column 2)	(Column 3)			
AMENDMENT	12/14/2021	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 10	Minus	** 20	= 0		x $100 =	0
	Independent (37 CFR 1.16(h))	* 4	Minus	*** 4	= 0		x $480 =	0
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	0

		(Column 1)		(Column 2)	(Column 3)			
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=		x $0 =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=		x $0 =	
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.	SLIE
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".	/PARTHENIA D MERRILL/
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".	
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.	

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/347,283	05/03/2019	Carlos Eduardo FABRI	UP20010US (FPAA06284)	4341

23413 7590 06/14/2021

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EXAMINER
HAGHIGHATIAN, MINA

ART UNIT	PAPER NUMBER
1616	

NOTIFICATION DATE	DELIVERY MODE
06/14/2021	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

usptopatentmail@cantorcolburn.com

PTOL-90A (Rev. 04/07)

Office Action Summary

Application No.	Applicant(s)		
16/347,283	FABRI et al.		
Examiner	**Art Unit**	**AIA (FITF) Status**	
Mina Haghighatian	1616	Yes	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☑ Responsive to communication(s) filed on 04/22/21.

☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on ____.

2a)☐ This action is **FINAL.** 2b) ☑ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on ____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

5) ☑ Claim(s) 1 and 9-17 is/are pending in the application.

5a) Of the above claim(s) ____ is/are withdrawn from consideration.

6) ☐ Claim(s) ____ is/are allowed.

7) ☑ Claim(s) 1 and 9-17 is/are rejected.

8) ☐ Claim(s) ____ is/are objected to.

9) ☐ Claim(s) ____ are subject to restriction and/or election requirement

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to **PPHfeedback@uspto.gov.**

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☐ The drawing(s) filed on ____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

12)☑ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a)☑ All b)☐ Some** c)☐ None of the:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. ____.

3.☑ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

** See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☑ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date _____.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date _____.

4) ☐ Other: _____.

DETAILED ACTION

Notice of Pre-AIA or AIA Status

The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the **AIA**.

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 04/22/21 has been entered.

Receipt is acknowledged of Amendments, Remarks and an IDS filed on 04/22/21. Claims 1, 9-12, 14 and 16-17 have been amended, claims 7-8 have been canceled and no new claims have been added. Accordingly, claims **1 and 9-17** have been presented for examination on the merits.

Rejections and/or objections not reiterated from the previous Office Action are hereby withdrawn. The following rejections and/or objections are either reiterated or newly applied. They constitute the complete set of rejections and/or objections presently being applied to the instant application.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on nonstatutory double patenting provided the reference application or patent either is shown to be commonly owned with the examined application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement. See MPEP § 717.02 for applications subject to examination under the first inventor to file provisions of the AIA as explained in MPEP § 2159. See MPEP §§ 706.02(l)(1) - 706.02(l)(3) for applications not subject to examination under the first inventor to file provisions of the AIA. A terminal disclaimer must be signed in compliance with 37 CFR 1.321(b).

The USPTO Internet website contains terminal disclaimer forms which may be used. Please visit www.uspto.gov/patent/patents-forms. The filing date of the application in which the form is filed determines what form (e.g., PTO/SB/25, PTO/SB/26, PTO/AIA/25, or PTO/AIA/26) should be used. A web-based eTerminal Disclaimer may be filled out completely online using web-screens. An eTerminal Disclaimer that meets all requirements is auto-processed and approved immediately upon submission. For more information about eTerminal Disclaimers, refer to www.uspto.gov/patents/process/file/efs/guidance/eTD-info-I.jsp.

Claims 1, 9-17 are rejected on the ground of nonstatutory double patenting as being unpatentable over claims 1-7 of U.S. Patent No. **10,694,744** in view of Kemmitt et al (US 20150181870). Although the claims at issue are not identical, they are not patentably distinct from each other because the examined claims would have been obvious over the reference claims in view of Kemmitt et al.

Specifically the examined claims are drawn to a fungicidal combination or composition consisting of benzovindiflupyr (a succinate dehydrogenase inhibitor fungicide) mancozeb and at least another fungicide selected from ergosterol biosynthesis inhibitor fungicide and quinone outside inhibitor fungicide. The compositions consisting of the said combination and an excipient. Claims are also drawn to a method of foliar application of the said combination/composition.

The reference claims are drawn to a fungicidal combination, consisting of: (i) mancozeb; (ii) at least one succinate dehydrogenase inhibitor fungicide selected from the group consisting of isopyrazam, boscalid, etc; and (a) at least one quinone outside

inhibitor fungicide selected from the group consisting of fenamidone, famoxadone, and a strobilurin fungicide selected from the group consisting of azoxystrobin, pyraoxystrobin, kresoxim-methyl, etc, and/or (b) at least one demethylation inhibitor fungicide selected from the group consisting of triflumizole, fenarimol, nuarimol, triarimol, and a conazole fungicide selected from the group consisting of cyproconazole, prothioconazole, tetraconazole, etc, and (iii) at least one agriculturally acceptable excipient.

The difference is that the reference claims do not list benzovindiflupyr as the succinate dehydrogenase inhibitor fungicide. However it would have been obvious to substitute the species in view of the art such as Kemmitt et al teaching them as alternatively useable species.

Accordingly, the examined combination of fungicidal active agents would have been obvious over the reference claims in view of Kemmitt et al.

Claims 1, 9-17 are rejected on the ground of nonstatutory double patenting as being unpatentable over claims 1-12 of U.S. Patent No. **10,362,782** in view of Kemmitt et al (US 20150181870). Although the claims at issue are not identical, they are not patentably distinct from each other because the examined claims would have been obvious over the reference claims in view of Kemmitt et al.

Specifically the examined claims are drawn to a fungicidal combination or composition consisting of benzovindiflupyr (a succinate dehydrogenase inhibitor fungicide) mancozeb and at least another fungicide selected from ergosterol biosynthesis inhibitor fungicide and quinone outside inhibitor fungicide. The

compositions consisting of the said combination and an excipient. Claims are also drawn to a method of foliar application of the said combination/composition.

The reference claims are drawn to a fungicidal combination, consisting of: (i) mancozeb; (ii) prothioconazole, and (a) at least one succinate dehydrogenase inhibitor fungicide selected from the group consisting of isopyrazam, penflufen, penthiopyrad, sedaxane, and boscalid; or (b) at least one quinone outside inhibitor fungicides selected from the group consisting of fenamidone, famoxadone, and a strobilurin fungicide selected from the group consisting of azoxystrobin, pyraoxystrobin, pyraclostrobin and trifloxystrobin; or (c) at least one demethylation inhibitor fungicide selected from the group consisting of fenarimol, nuarimol, triarimol, and a conazole fungicide selected from the group consisting of clotrimazole, oxpoconazole, cyproconazole, prothioconazole, tebuconazole, tetraconazole,etc; and (iii) at least one agriculturally acceptable excipient.

The difference is that the reference claims do not list benzovindiflupyr as the succinate dehydrogenase inhibitor fungicide. However it would have been obvious to substitute the species in view of the art such as Kemmitt et al teaching them as alternatively useable species.

Accordingly, the examined combination of fungicidal active agents would have been obvious over the reference claims in view of Kemmitt et al.

Claims 1, 12 and 16-17 are rejected on the ground of nonstatutory double patenting as being unpatentable over claim 1 of U.S. Patent No. **10,537,101** in view of Kemmitt et al (US 20150181870). Although the claims at issue are not identical, they

are not patentably distinct from each other because the examined claims would have been obvious over the reference claims in view of Kemmitt et al.

Specifically the examined claims are drawn to a fungicidal combination or composition consisting of benzovindiflupyr (a succinate dehydrogenase inhibitor fungicide) mancozeb and at least another fungicide selected from ergosterol biosynthesis inhibitor fungicide and quinone outside inhibitor fungicide. The compositions consisting of the said combination and an excipient. Claims are also drawn to a method of foliar application of the said combination/composition.

The reference claims are drawn to a method of reducing phytotoxicity of a fungicidal combination consisting of tebuconazole or prothioconazole and a strobilurin fungicide in soybean cultivars, the method comprising: (i) adding to a spray tank 1.0 kg/ha to 5.0 kg/ha of mancozeb and premixed tebuconazole or prothioconazole and strobilurin fungicide; (ii) triggering the spray tank agitator to produce a homogenized syrup; and (iii) applying the homogenized syrup to top leaves of a soybean crop, wherein adding mancozeb to the fungicidal combination consisting of tebuconazole or prothioconazole and a strobilurin fungicide decreases the phytotoxicity of the tebuconazole or prothioconazole to the soybean crop in comparison to a method lacking adding mancozeb.

The difference is that the reference claims do not list benzovindiflupyr as the succinate dehydrogenase inhibitor fungicide. However it would have been obvious to substitute the species in view of the art such as Kemmitt et al teaching them as alternatively useable species.

Accordingly, the examined combination of fungicidal active agents would have been obvious over the reference claims in view of Kemmitt et al.

Claims 1, 12 and 16-17 are rejected on the ground of nonstatutory double patenting as being unpatentable over claim 1 of U.S. Patent No. **10,694,745** in view of Kemmitt et al (US 20150181870). Although the claims at issue are not identical, they are not patentably distinct from each other because the examined claims would have been obvious over the reference claims in view of Kemmitt et al.

Specifically the examined claims are drawn to a fungicidal combination or composition consisting of benzovindiflupyr (a succinate dehydrogenase inhibitor fungicide) mancozeb and at least another fungicide selected from ergosterol biosynthesis inhibitor fungicide and quinone outside inhibitor fungicide. The compositions consisting of the said combination and an excipient. Claims are also drawn to a method of foliar application of the said combination/composition.

The reference claims are drawn to a kit comprising a fungicidal combination consisting of (i) mancozeb, (ii) at least one quinone outside inhibitor, and (iii) at least one demethylation inhibitor.

The difference is that the reference claims do not list benzovindiflupyr as the succinate dehydrogenase inhibitor fungicide. However it would have been obvious to substitute the species in view of the art such as Kemmitt et al teaching them as alternatively useable species.

Accordingly, the examined combination of fungicidal active agents would have been obvious over the reference claims in view of Kemmitt et al.

Claims 1, 12 and 16-17 are rejected on the ground of nonstatutory double patenting as being unpatentable over claim 1 of U.S. Patent No. **10,448,636** in view of Kemmitt et al (US 20150181870). Although the claims at issue are not identical, they are not patentably distinct from each other because the examined claims would have been obvious over the reference claims in view of Kemmitt et al.

Specifically the examined claims are drawn to a fungicidal combination or composition consisting of benzovindiflupyr (a succinate dehydrogenase inhibitor fungicide) mancozeb and at least another fungicide selected from ergosterol biosynthesis inhibitor fungicide and quinone outside inhibitor fungicide. The compositions consisting of the said combination and an excipient. Claims are also drawn to a method of foliar application of the said combination/composition.

The reference claims are drawn to an anti-resistance method for preventing or delaying the development of a fungal disease in a soybean or wheat crop, the method comprising: (i) adding to a spray tank, mancozeb (manganese ethylene bis(dithiocarbamate)+Zn) in an amount of 1.0 kg/ha to 5.0 kg/ha, and a prefabricated mixture of fungicides comprising: a quinone outside inhibitor fungicide (QoI), which is a strobilurin, and a demethylation inhibitor fungicide (DMI), which is a triazole; (ii) triggering spray tank agitator to form a homogenized syrup; and (iii) applying the homogenized syrup to the crop; wherein Phakopsora pachyrhizi is a causal agent of rust in the soybean crop, and Drechslera tritici-repentis is a causal agent of yellow leaf

spot in the wheat crop, and wherein the addition of the mancozeb to the quinone outside inhibitor and the demethylation inhibitor increases the resistance of the crop to the disease in comparison to the method lacking mancozeb.

The difference is that the reference claims do not list benzovindiflupyr as the succinate dehydrogenase inhibitor fungicide. However it would have been obvious to substitute the species in view of the art such as Kemmitt et al teaching them as alternatively useable species.

Accordingly, the examined combination of fungicidal active agents would have been obvious over the reference claims in view of Kemmitt et al.

Claims 1, 9-17 are provisionally rejected on the ground of nonstatutory double patenting as being unpatentable over claims 1-6 of copending Application No. **16/785,313** (US 20200170251) in view of Kemmitt et al (US 20150181870). Although the claims at issue are not identical, they are not patentably distinct from each other because the examined claims would have been obvious over the reference claims in view of Kemmitt et al.

Specifically the examined claims are drawn to a fungicidal combination or composition consisting of benzovindiflupyr (a succinate dehydrogenase inhibitor fungicide) mancozeb and at least another fungicide selected from ergosterol biosynthesis inhibitor fungicide and quinone outside inhibitor fungicide. The compositions consisting of the said combination and an excipient. Claims are also drawn to a method of foliar application of the said combination/composition.

The reference claims are drawn to a composition comprising a fungicidal combination and at least one agriculturally acceptable excipient, wherein the fungicidal combination consists of: (a) a multi-site contact fungicide selected from the group consisting of copper oxychloride, copper sulfate, copper hydroxide, and tribasic copper sulfate (Bordeaux mixture); (b) a first systemic fungicide that is a succinate dehydrogenase inhibitor; and (c) a second systemic fungicide selected from the group consisting of a quinone outside inhibitor, a quinone inside inhibitor, or a demethylation inhibitor.

The reference claims are drawn to a kit comprising a fungicidal combination consisting of (i) mancozeb, (ii) at least one quinone outside inhibitor, and (iii) at least one demethylation inhibitor.

The differences are that the reference claims do not list benzovindiflupyr as the succinate dehydrogenase inhibitor fungicide and do not teach mancozeb as the multi-site contact fungicide. However it would have been obvious to substitute the species in view of the art such as Kemmitt et al teaching them as alternatively useable species.

Accordingly, the examined combination of fungicidal active agents would have been obvious over the reference claims in view of Kemmitt et al.

This is a provisional nonstatutory double patenting rejection.

Response to Arguments

Applicant's arguments, see Remarks, filed 04/22/21, with respect to rejections under USC 103 and amendments have been fully considered and are persuasive. The said rejections have been withdrawn.

Applicant has made no argument regarding the rejection of claims under obviousness type double patenting and as such they are maintained. Regarding the rejection of claims under provisional double patenting over claims of Application No. 16/785,313, Applicant argues that since neither case has been issued or allowed, and he claims are not final, a determination cannot be made (See Remarks, page).

The above argument is not sufficient to obviate the rejection. The claims are so close that an obviousness type double patenting is required. It is also noted that the co-pending application does not contain a rejection under obviousness type double patenting over this Application. A terminal disclaimer is required to remove this rejection.

Claims 1 and 9-17 remain rejected.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mina Haghighatian whose telephone number is (571)272-0615. The examiner can normally be reached on M-F, 7-5 EST.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at http://www.uspto.gov/interviewpractice.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sue Liu can be reached on 571-272-5539. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see https://ppair-my.uspto.gov/pair/PrivatePair. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Mina Haghighatian/

Mina Haghighatian
Primary Examiner
Art Unit 1616

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/347,283	FABRI et al.
	Examiner	Art Unit
	Mina Haghighatian	1616

CPC - Searched*		
Symbol	Date	Examiner

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/347,283	FABRI et al.
	Examiner	Art Unit
	Mina Haghighatian	1616

Search Notes		
Search Notes	**Date**	**Examiner**
WEST- Text and Inventor names searched	08/14/2020	mh
NPL-Text and Inventor names searched	08/14/2020	mh
Google patent search	08/14/2020	mh
Google scholar search	08/14/2020	mh
Global dossier	08/14/2020	mh
Espacnet search	08/14/2020	mh
Foreign patent finder	08/14/2020	mh
PALM- Inventor names search	08/14/2020	mh
IDS considered	08/14/2020	mh
WEST search update	08/17/2020	mh
WESTsearch update	08/17/2020	mh
WEST- Text and Inventor names searched	01/14/2021	MH
NPL-Text and Inventor names searched	01/14/2021	MH
WEST search updated	01/14/2021	MH
WEST- Text, inventor names searched	01/14/2021	MH
WEST- Text, classification searched	01/14/2021	MH
Google scholar search	01/14/2021	MH
Google patent search	01/15/2021	MH
Foreign patent finder	01/15/2021	MH
WEST-copending patents and applications searched	01/15/2021	MH
WEST text, classification and inventor names search	06/07/2021	mh
Google scholar search	06/07/2021	mh
Google patent search	06/07/2021	mh
Espacenet search	06/07/2021	mh
Global dossier	06/07/2021	mh
IDS considered	06/08/2021	mh
PALM- Inventor names search	06/07/2021	mh

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/347,283	FABRI et al.
	Examiner	Art Unit
	Mina Haghighatian	1616

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner

Refine Search

Search Results

Terms	Documents
L17 A01N 45/02	1

Database: [redacted]

Search Type: (•) Prior Art ( ) Interference

Search: L24 Refine Search

Order By: (•) Date ( ) Hits

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Search History

DATE: Monday, June 07, 2021 Purge Queries Printable Copy Create Case

Order By	Set Name Side by Side	Query	Hit Count	Set Name Result Set	Set Name Grid	Set Name Classification
Prior Art Searches						
	DB=PGPB,USPT,EPAB,JPAB,DWPI; PLUR=YES; OP=AND					
Date	L1	benzovindiflupyr same mancozeb fungici$	694	L1	L1	L1
Date	L2	L1 ergosterol quinone	20	L2	L2	L2
	DB=USPT; PLUR=YES; OP=AND					
Date	L3	4171385	54	L3	L3	L3
Date	L4	4171385.pn.	1	L4	L4	L4

	DB=PGPB; PLUR=YES; OP=AND					
Date	L5	15545156	1	L5	L5	L5
	DB=PGPB,USPT,USOC; PLUR=YES; OP=AND					
Date	L6	fabri.inv.	310	L6	L6	L6
Date	L7	L6 Shroff.inv.	15	L7	L7	L7
Date	L8	L7 fungicidal	8	L8	L8	L8
Date	L9	L8 benzovindiflupyr	6	L9	L9	L9
Date	L10	L8 benzovindiflupyr.clm.	6	L10	L10	L10
	DB=PGPB; PLUR=YES; OP=AND					
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Date	L14	10537101	2	L14	L14	L14
Date	L15	10362782	2	L15	L15	L15
Date	L16	10694744	2	L16	L16	L16
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Date	L17	A01N 47/14	52	L17	L17	L17
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Date	L19	L17 A01N 43/40	8	L19	L19	L19
Date	L20	L17 A01N 43/54	6	L20	L20	L20
Date	L21	L17 A01N 43/56	5	L21	L21	L21
Date	L22	L17 A01N 43/60	1	L22	L22	L22
Date	L23	L17 A01N 43/653	9	L23	L23	L23
Date	L24	L17 A01N 45/02	1	L24	L24	L24

END OF SEARCH HISTORY

PALM INTRANET

Day : Monday
Date: 6/7/2021
Time: 11:54:22

Inventor Name Search Result

Your Search was:

Last Name = SHROFF
First Name = RAJJU

Application#	Patent#	PG Pub#	Status	Date Filed	Title	Examiner Name	Inventor Name
09999867	Not Issued		160	05/17/2001	Phosphine generator and a special metal phosphide formulation for use in the generator	,	SHROFF, RAJJU
10136965	6875383	20030127761	150	04/22/2002	PROCESS FOR PREPARATION OF CHEMICALLY STABLE, DRY-FLOW, LOW COMPACT, DUST FREE, SOLUBLE GRANULES OF PHOSPHOROAMIDOTHIOATES	EASHOO,MARK	SHROFF, RAJJU DEVIDAS
11069283	7,273685	20050143351	150	02/18/2005	PROCESS FOR PREPARATION OF CHEMICALLY STABLE, DRY-FLOW, LOW COMPACT, DUST FREE, SOLUBLE GRANULES OF PHOSPHOROAMIDOTHIOATES	LEVY,NEIL	SHROFF, RAJJU DEVIDAS
16347223	Not Issued	20190274307	30	05/03/2019	FUNGICIDAL COMBINATIONS	HAGHIGHATIAN,MINA	SHROFF, RAJJU DEVIDAS
16491639	Not Issued	20210127679	20	09/06/2019	FUNGICIDAL COMBINATIONS	,	SHROFF, RAJJU DEVIDAS
16611964	Not Issued	20210076677	19	12/06/2019	NOVEL PESTICIDAL COMBINATIONS	,	SHROFF, RAJJU DEVIDAS
16620161	Not Issued	20200138025	20	12/06/2019	NOVEL PESTICIDAL COMBINATIONS	,	SHROFF, RAJJU DEVIDAS
16663914	Not Issued	20210137119	40	10/25/2019	FUNGICIDAL COMBINATIONS	HIRT,ERIN	SHROFF, RAJJU DEVIDAS
17136193	Not Issued	20210106006	20	12/22/2020	FUNGICIDAL COMBINATIONS	,	SHROFF, RAJJU DEVIDAS
60277558	Not Issued		159	03/22/2001	Phosphine generator and a special metal phosphide formulation for use in the generator	,	SHROFF, RAJJU DEVIDAS
60340272	Not Issued		159	12/18/2001	Process for preparation of chemically stable, dry flow, low compact, dust free, soluble granules of phosphoroamidothioate	,	SHROFF, RAJJU DEVIDAS

Inventor Search Completed: No Records to Display.

Search Another: Inventor Last Name SHROFF First Name RAJJU Search

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Web Search History

date, time	web site	search string
6/7/2021 3:40:20 PM	Google Scholar	(mancozeb) (fungicide) (benzovindiflupyr) (azoxystrobin)
6/7/2021 3:40:20 PM	Google Patents	**Keyword Group 1** [(mancozeb) (fungicide) (benzovindiflupyr) (azoxystrobin)] **Before** Priority Date: priority:20161104
6/7/2021 3:40:23 PM	Google Scholar	mancozeb fungicide combination inhibitor azoxystrobin
6/7/2021 3:40:23 PM	Google Patents	**Keyword Group 1** [mancozeb] **Keyword Group 2** [fungicide] **Keyword Group 3** [combination] **Keyword Group 4** [inhibitor] **Keyword Group 5** [azoxystrobin] **Before** Priority Date: priority:20161104
6/7/2021 3:40:43 PM	Google Patents	**Keyword Group 1** [~patent/US20190274307A1]
6/7/2021 3:49:18 PM	Google Patents	**Keyword Group 1** [benzovindiflupyr mancozeb ergosterol]
6/7/2021 3:49:25 PM	Google	google patents
6/7/2021 3:49:37 PM	Google Scholar	google scholar
6/7/2021 3:49:37 PM	Google	google scholar
6/7/2021 3:50:46 PM	Google Scholar	benzovindiflupyr mancozeb prothioconazole
6/7/2021 3:52:26 PM	Google Scholar	benzovindiflupyr mancozeb azoxystrobin

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Result list

1 result found for pn=US2019274307A1
Results to 1 displayed
Query language: en / de / fr
Sort by: Relevance

1. FUNGICIDAL COMBINATIONS

Title	Inventors	Applicants	Publication number	Earliest priority	IPC	CPC	Publication date	Earliest publication	Family number
FUNGICIDAL COMBINATIONS	FABRI CARLOS EDUARDO [BR] SHROFF JAIDEV RAJNIKANT [AE] SHROFF RAJJU DEVIDAS [IN] SHROFF VIKRAM RAJNIKANT [AE]	UPL LTD [IN]	US2019274307A1	2016-11-04	A01N37/36 A01N43/16 A01N43/40 A01N43/54 A01N43/56 A01N43/60 A01N43/653 A01N47/14	A01N37/36 (US) A01N43/16 (US) A01N43/40 (EP,KR,US) A01N43/54 (US) A01N43/56 (EP,KR,US) A01N43/60 (US) A01N43/653 (EP,KR,US) A01N45/02 (EP,KR,US) A01N47/14 (EP,KR,US) A01N43/40, A01N43/54, A01N43/653, INV (EP,US) A01N43/56, A01N43/54, A01N43/653, INV (EP,US) A01N43/653, A01N43/54, INV (EP,US) A01N45/02, A01N43/56, A01N43/653, INV (EP,US) A01N47/14, A01N43/40, A01N43/54, A01N43/56, A01N43/653, A01N45/02, INV (EP,US)	2019-09-12	2018-03-23	062075890

Espacenet – 2021-06-7

PALM INTRANET

Day : Monday
Date: 6/7/2021
Time: 11:58:15

Inventor Name Search Result

Your Search was:

Last Name = SHROFF
First Name = VIKRAM

Application#	Patent#	PG Pub#	Status	Date Filed	Title	Examiner Name	Inventor Name
12155285	7726271	20080312320	150	06/12/2008	Non-dusty, free flowing, storage stable solid composition and a process for its preparation	FRAZIER,BARBARA	SHROFF, VIKRAM RAJNIKANT
12845861	8015723	20110028323	250	07/29/2010	Herbicidal Combination	BRANSON,DANIEL	SHROFF, VIKRAM RAJNIKANT
12863235	Not Issued	20110015066	161	07/16/2010	Herbicidal Composition	HOLT,ANDRIAE	SHROFF, VIKRAM RAJNIKANT
13520891	Not Issued	20120322661	161	08/22/2012	Organized Liquid Mixture	ANTHOPOLOS,PETER	SHROFF, VIKRAM RAJNIKANT
13576181	9288972	20120309627	150	07/31/2012	Microencapsulated Pendimethalin Comprising Alkali or Alkaline Earth Metal Salt of Organic Acid	ROBINSON,LISBETH	SHROFF, VIKRAM RAJNIKANT
13582284	9034795	20120329656	150	09/05/2012	Stable Capsule Suspension of Clomazone	PALLAY,MICHAEL	SHROFF, VIKRAM RAJNIKANT
13819979	9307762	20140274717	150	03/15/2013	SELECTIVE WEED CONTROL USING D-NAPROPAMIDE	PRYOR,ALTON	SHROFF, VIKRAM RAJNIKANT
13882580	8993788	20130217900	150	04/30/2013	CHIRAL INTERMEDIATES USEFUL FOR THE PREPARATION OF HYDROXYPHOSPHINE LIGANDS	MAURO,JOHN	SHROFF, VIKRAM RAJNIKANT
13963140	Not Issued	20140044765	161	08/09/2013	STABLE FORMULATION	LAZARO,DOMINIC	SHROFF, VIKRAM RAJNIKANT
14238009	9554577	20140200141	150	02/10/2014	HERBICIDAL FORMULATION	SHIN,MONICA	SHROFF, VIKRAM RAJNIKANT
14416682	9451769	20150272125	150	04/18/2015	Fungicidal Composition Comprising Mancozeb and Chlorothalonil	POLANSKY,GREGG	SHROFF, VIKRAM RAJNIKANT
14674202	9370179	20150201614	150	03/31/2015	Stable encapsulated formulation of clomazone	PALLAY,MICHAEL	SHROFF, VIKRAM RAJNIKANT
14773328	9578875	20160007593	150	09/05/2015	FUNGICIDAL COMPOSITION	JAVANMARD,SAHAR	SHROFF, VIKRAM RAJNIKANT
14847212	9661846	20160066570	150	09/08/2015	Novel Agrochemical Compositions	HAGHIGHATIAN,MINA	SHROFF, VIKRAM RAJNIKANT
14896012	10006806	20160120177	150	12/08/2015	Agrochemical Formulations	PRYOR,ALTON	SHROFF, VIKRAM RAJNIKANT
15022785	10694741	20160270392	150	04/15/2016	AGROCHEMICAL COMPOSITIONS HAVING INCREASED RAINFASTNESS	PRYOR,ALTON	SHROFF, VIKRAM RAJNIKANT
15032463	9788544	20160360751	150	05/26/2016	A METHOD FOR CONTROLLING RUST	MURRAY,JEFFREY	SHROFF, VIKRAM RAJNIKANT
15040722	10537107	20160235071	150	02/10/2016	Stable Aqueous Compositions	HAGHIGHATIAN,MINA	SHROFF, VIKRAM RAJNIKANT
15024397	10080364	20160219877	150	04/08/2016	SELECTIVE WEED CONTROL USING D-NAPROPAMIDE	PRYOR,ALTON	SHROFF, VIKRAM RAJNIKANT
15115553	10088025	20170181434	150	07/29/2016	STABLE HERBICIDAL COMPOSITIONS	HIRT,ERIN	SHROFF, VIKRAM RAJNIKANT
15482515	10172348	20180000072	150	04/07/2017	LOW TOXICITY COMPOSITION	HUI,SAN MING	SHROFF, VIKRAM RAJNIKANT
15544717	10336682	20170369423	150	07/19/2017	CRYSTALLINE MODIFICATION OF PROPANIL	PRYOR,ALTON	SHROFF, VIKRAM RAJNIKANT
15564282	10781372	20180305618	150	10/06/2017	WATER ABSORBENT COMPOSITION	ANTHONY,JOSEPH	SHROFF, VIKRAM RAJNIKANT
15673311	10694744	20170332636	150	08/09/2017	METHOD FOR CONTROLLING RUST	WANG,SHENGJUN	SHROFF, VIKRAM RAJNIKANT
15673313	10362782	20170332637	150	08/09/2017	METHOD FOR CONTROLLING RUST	WANG,SHENGJUN	SHROFF, VIKRAM RAJNIKANT
15673316	10492638	20170332638	150	08/09/2017	METHOD FOR CONTROLLING RUST	WANG,SHENGJUN	SHROFF, VIKRAM RAJNIKANT
15721125	10701935	20180020665	150	09/29/2017	METHOD FOR CONTROLLING RUST	WANG,SHENGJUN	SHROFF, VIKRAM RAJNIKANT
15752513	10225284	20180228147	150	02/13/2018	SOLID AGROCHEMICAL COMPOSITIONS	SCHLIENTZ,NATHAN	SHROFF, VIKRAM RAJNIKANT
15954269	10694743	20180228156	150	04/16/2018	METHOD FOR CONTROLLING RUST	WANG,SHENGJUN	SHROFF, VIKRAM RAJNIKANT

15201862	10660337	20180368412	150	05/29/2018	STABLE AGROCHEMICAL COMPOSITION AND PROCESS THEREOF	SHIAO,REI TSANG	SHROFF, VIKRAM RAJNIKANT
15928648	Not Issued	20200329708	41	08/16/2018	HERBICIDE COMBINATION	PRYOR,ALTON	SHROFF, VIKRAM RAJNIKANT
16149127	10485234	20190021320	150	09/24/2018	SELECTIVE WEED CONTROL USING D-NAPROPAMIDE	PRYOR,ALTON	SHROFF, VIKRAM RAJNIKANT
16322144	Not Issued	20190166845	41	02/04/2019	METHODS OF TREATMENT AND PREVENTION OF WHITE SPOT IN MAIZE CROPS	RODRIGUEZ,RAYNA	SHROFF, VIKRAM RAJNIKANT
16337271	10934235	20200031772	150	03/28/2019	PROCESS FOR PREPARATION OF BOSCALID ANHYDRATE FORM I AND BOSCALID ANHYDRATE FORM II	SOLOLA,TAOFIQ	SHROFF, VIKRAM RAJNIKANT
16344892	Not Issued	20190261631	30	04/25/2019	STABLE HERBICIDAL COMPOSITIONS	SILVERMAN,JANICE	SHROFF, VIKRAM RAJNIKANT
16347281	Not Issued	20190274307	30	05/03/2019	FUNGICIDAL COMBINATIONS	HAGHIGHATIAN,MINA	SHROFF, VIKRAM RAJNIKANT
16348563	Not Issued	20190269135	71	05/09/2019	TERNARY HERBICIDAL COMBINATION	CHUI,MEI PING	SHROFF, VIKRAM RAJNIKANT
16395258	10689128	20190248734	150	04/26/2019	CRYSTALLINE MODIFICATION OF PROPANIL	PRYOR,ALTON	SHROFF, VIKRAM RAJNIKANT
16423400	Not Issued	20190357539	71	05/28/2019	AQUEOUS HERBICIDAL INTERMIXTURES	CHUI,MEI PING	SHROFF, VIKRAM RAJNIKANT
16423491	Not Issued	20190357530	61	05/28/2019	BEAD COMPOSITIONS FOR AQUATIC WEED CONTROL	SAEED,ALI	SHROFF, VIKRAM RAJNIKANT
16471088	Not Issued	20200115149	30	06/19/2019	Moisture Barrier Package	LAN,YAN	SHROFF, VIKRAM RAJNIKANT
16477312	10687534	20200029569	150	07/11/2019	A METHOD TO CONTROL ADULT INSECT POPULATION	DAVIS,BRIAN	SHROFF, VIKRAM RAJNIKANT
16482819	Not Issued	20200045964	61	07/31/2019	HERBICIDAL COMBINATION	HAGHIGHATIAN,MINA	SHROFF, VIKRAM RAJNIKANT
16491639	Not Issued	20210127679	20	09/06/2019	FUNGICIDAL COMBINATIONS	,	SHROFF, VIKRAM RAJNIKANT
16615846	Not Issued	20200163330	41	11/15/2019	Stable Liquid Formulations of Prothioconazole	CHUI,MEI PING	SHROFF, VIKRAM RAJNIKANT
16610964	Not Issued	20210076677	19	12/06/2019	NOVEL PESTICIDAL COMBINATIONS	,	SHROFF, VIKRAM RAJNIKANT
16620161	Not Issued	20200138025	20	12/06/2019	NOVEL PESTICIDAL COMBINATIONS	,	SHROFF, VIKRAM RAJNIKANT
16623463	Not Issued	20200113180	93	12/19/2019	Polymorphs of Mesotrione Metal Chelate and Preparation Process	LOVE,TREVOR	SHROFF, VIKRAM RAJNIKANT
16637252	Not Issued		19	01/01/0001	SYNERGISTIC HERBICIDAL COMBINATIONS	,	SHROFF, VIKRAM RAJNIKANT
16637380	Not Issued	20200404924	41	02/07/2020	A Liquid Composition and Process Thereof	PACKARD,BENJAMIN	SHROFF, VIKRAM RAJNIKANT

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(**Not for submission under 37 CFR 1.99)**

Application Number	16347283
Filing Date	2019-05-03
First Named Inventor	Carlos Eduardo FABRI
Art Unit	1616
Examiner Name	Mina Haghighatian
Attorney Docket Number	UP20010US

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/M.H/	1	2006037632	WO	WO	2006-04-13	SYNGENTA PARTICIPATIONS AG		☐
/M.H/	2	2006037634	WO	A1	2006-04-13	SYNGENTA PARTICIPATIONS AG		☐
/M.H/	3	2013127818	WO	A1	2013-09-06	BASF SCHWEIZ AG		☐

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(**Not for submission under 37 CFR 1.99)**

Application Number	16347283
Filing Date	2019-05-03
First Named Inventor	Carlos Eduardo FABRI
Art Unit	1616
Examiner Name	Mina Haghighatian
Attorney Docket Number	UP20010US

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[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(**Not for submission under 37 CFR 1.99)**

Application Number	16347283
Filing Date	2019-05-03
First Named Inventor	Carlos Eduardo FABRI
Art Unit	1616
Examiner Name	Mina Haghighatian
Attorney Docket Number	UP20010US

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Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

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☐ See attached certification statement.

☐ The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

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A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Karen A. LeCuyer/	Date (YYYY-MM-DD)	2021-04-22
Name/Print	Karen A. LeCuyer	Registration Number	51928

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Inventor Name Search Result

Your Search was:

Last Name = FABRI
First Name = CARLOS

Application#	Patent#	PG Pub#	Status	Date Filed	Title	Examiner Name	Inventor Name
15127138	Not Issued	20170183271	161	03/06/2017	PLANT ACTIVATOR FOR SUGAR CANE AND USE THEREOF	SMITH,JENNIFER	FABRI, CARLOS
13876613	Not Issued	20150051231	161	11/05/2013	SYNERGISTIC COMBINATIONS OF TRIAZOLES, STROBILURINS AND BENZIMIDAZOLES, USES, FORMULATIONS, PRODUCTION PROCESSES AND APPLICATIONS USING THE SAME	HAGHIGHATIAN,MINA	FABRI, CARLOS EDUARDO
16323143	Not Issued	20190166845	41	02/04/2019	METHODS OF TREATMENT AND PREVENTION OF WHITE SPOT IN MAIZE CROPS	RODRIGUEZ,RAYNA	FABRI, CARLOS EDUARDO
16347283	Not Issued	20190274307	30	05/03/2019	FUNGICIDAL COMBINATIONS	HAGHIGHATIAN,MINA	FABRI, CARLOS EDUARDO
16477312	10687534	20200029569	150	07/11/2019	A METHOD TO CONTROL ADULT INSECT POPULATION	DAVIS,BRIAN	FABRI, CARLOS EDUARDO
16482319	Not Issued	20200045964	61	07/31/2019	HERBICIDAL COMBINATION	HAGHIGHATIAN,MINA	FABRI, CARLOS EDUARDO
16491639	Not Issued	20210127679	20	09/06/2019	FUNGICIDAL COMBINATIONS	,	FABRI, CARLOS EDUARDO
16619964	Not Issued	20210076677	19	12/06/2019	NOVEL PESTICIDAL COMBINATIONS	,	FABRI, CARLOS EDUARDO
16620161	Not Issued	20200138025	20	12/06/2019	NOVEL PESTICIDAL COMBINATIONS	,	FABRI, CARLOS EDUARDO
16637389	Not Issued	20200404924	41	02/07/2020	A Liquid Composition and Process Thereof	PACKARD,BENJAMIN	FABRI, CARLOS EDUARDO
16663914	Not Issued	20210137119	40	10/25/2019	FUNGICIDAL COMBINATIONS	HIRT,ERIN	FABRI, CARLOS EDUARDO
16764500	Not Issued	20200296969	20	05/15/2020	NOVEL COMBINATIONS OF DEFOLIANTS	,	FABRI, CARLOS EDUARDO
16962328	Not Issued	20200337310	30	07/15/2020	Herbicidal Combinations	SILVERMAN,JANICE	FABRI, CARLOS EDUARDO
16989578	Not Issued		19	01/01/0001	HERBICIDAL COMBINATIONS	,	FABRI, CARLOS EDUARDO
17048833	Not Issued	20210007355	20	09/23/2020	FUNGICIDAL COMBINATIONS	,	FABRI, CARLOS EDUARDO
17040071	Not Issued	20210022343	20	09/23/2020	FUNGICIDAL COMBINATIONS	,	FABRI, CARLOS EDUARDO
17139193	Not Issued	20210106006	20	12/22/2020	FUNGICIDAL COMBINATIONS	,	FABRI, CARLOS EDUARDO

Inventor Search Completed: No Records to Display.

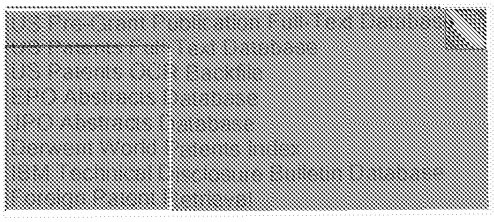
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Date	L1	benzovindiflupyr same mancozeb fungici$	694	L1	L1	L1
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Date	L3	4171385	54	L3	L3	L3
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	DB=PGPB,USPT,USOC; PLUR=YES; OP=AND					
Date	L6	fabri.inv.	310	L6	L6	L6
Date	L7	L6 Shroff.inv.	15	L7	L7	L7
Date	L8	L7 fungicidal	8	L8	L8	L8
Date	L9	L8 benzovindiflupyr	6	L9	L9	L9
Date	L10	L8 benzovindiflupyr.clm.	6	L10	L10	L10
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Date	L11	16785313	2	L11	L11	L11
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Date	L14	10537101	2	L14	L14	L14
Date	L15	10362782	2	L15	L15	L15
Date	L16	10694744	2	L16	L16	L16
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Date	L17	A01N 47/14	52	L17	L17	L17
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Date	L19	L17 A01N 43/40	8	L19	L19	L19
Date	L20	L17 A01N 43/54	6	L20	L20	L20
Date	L21	L17 A01N 43/56	5	L21	L21	L21
Date	L22	L17 A01N 43/60	1	L22	L22	L22
Date	L23	L17 A01N 43/653	9	L23	L23	L23
Date	L24	L17 A01N 45/02	1	L24	L24	L24

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20190274307

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US 20190274307 23 Members in Patent Family (6 currently shown)

IP Office Type

All IP5 Offices
- EPO
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Non-IP5 Offices

Office	Application	Applicant	Title	App. Date	Priority #	Pub. #	Pub. Date
KR	20197013280 View Dossier	1) UPL LIMITED,	FUNGICIDAL COMBINATIONS	10/30/2017	IN 201631037704 IB 2017056710	KR 20190082218 A	07/09/2019
US	16347283 View Dossier			10/30/2017	IN 201631037704 IB 2017056710	US 20190274307 A1	09/12/2019
JP	2019522363 View Dossier	1) You PL Limited, 2) Patent business corporation Washida & Associates,	COMBINATIONS OF ANTIFUNGAL AGENTS	10/30/2017	IN 201631037704 IB 2017056710	JP 2019533683 A	11/21/2019
EP	17867258 View Dossier	1) UPL Ltd,	FUNGICIDAL COMBINATIONS	10/30/2017	IN 201631037704 IB 2017056710	EP 3534711 A1 EP 3534711 A4	09/11/2019 11/18/2020
CN	201780068179 View Dossier	1) UPL LTD.,	FUNGICIDAL COMBINATIONS	10/30/2017	IN 201631037704 IB 2017056710	CN 109906034 A	06/18/2019
US	17130193 View Dossier	1) FABRI, Carlos Eduardo 2) SHROFF, Rajju Devidas 3) SHROFF, Jaidev Rajnikant 4) SHROFF, Vikram Rajnikant	FUNGICIDAL COMBINATIONS	12/22/2020	US 16347283 US 17130193 IN 201631037704 IB 2017056710	US 20210106006 A1	04/15/2021

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Inventor Name Search Result

Your Search was:

Last Name = SHROFF
First Name = JAIDEV

Application#	Patent#	PG Pub#	Status	Date Filed	Title	Examiner Name	Inventor Name
60512851	Not Issued		159	10/22/2003	Insecticidal granular composition with enhanced synergistic activity	,	SHROFF, JAIDEV R.
60512920	Not Issued		159	10/22/2003	Process for the granular preparation of synergistic insecticidal composition	,	SHROFF, JAIDEV R.
10889213	7531187	20060014724	250	07/13/2004	SYNERGISTIC INSECTICIDAL COMPOSITION CONTAINING CHLORONICOTYNYLE AND PYRETHROIDS COMPOUNDS	LEVY,NEIL	SHROFF, JAIDEV RAINIKANT
10888512	7445791	20060008493	150	07/12/2004	SYNERGISTIC INSECTICIDAL COMPOSITION CONTAINING CHLORONICOTYNYLE AND ORGANOSPHOSPHORUS COMPOUNDS	LEVY,NEIL	SHROFF, JAIDEV RAJNIKANT
10976726	8142802	20050142158	250	10/22/2004	INSECTICIDAL COMPOSITION WITH ENHANCED SYNERGISTIC ACTIVITY	LEVY,NEIL	SHROFF, JAIDEV RAJNIKANT
11168994	7223949	20060003014	150	06/29/2005	SAFE DELIVERY SYSTEM FOR AGRICULTURALLY ACTIVE MATERIAL	PRYOR,ALTON	SHROFF, JAIDEV RAJNIKANT
11617370	7951396	20070196410	150	12/28/2006	SLOW-RELEASE MICROCAPSULE COMPOSITION FOR SAFE DELIVERY OF AGRICULTURALLY ACTIVE MATERIAL	PRYOR,ALTON	SHROFF, JAIDEV RAJNIKANT
12155985	9220271	20080312320	150	06/12/2008	Non-dusty, free flowing, storage stable solid composition and a process for its preparation	FRAZIER,BARBARA	SHROFF, JAIDEV RAJNIKANT
12418050	Not Issued	20090208423	161	04/03/2009	Synergistic Insecticidal Composition Containing Chloronicotynyle and Pyrethroids Compounds	LEVY,NEIL	SHROFF, JAIDEV RAJNIKANT
12421453	Not Issued	20090203746	161	04/09/2009	Synergistic Insecticidal Composition Containing Chloronicotynyle and Pyrethroids Compounds	LEVY,NEIL	SHROFF, JAIDEV RAJNIKANT
12598752	8366765	20100144532	150	11/03/2009	PROCESS FOR MANUFACTURE OF HIGH PURITY D-(-)-N,N-DIETHYL-2-(ALPHA-NAPHTHOXY) PROPIONAMIDE	KUMAR,SHAILENDRA	SHROFF, JAIDEV RAJNIKANT
12779888	9364029	20110275710	150	05/07/2010	AGRICULTURAL PESTICIDE FORMULATIONS AND PROCESS FOR MAKING THE SAME	NIELSEN,THOR	SHROFF, JAIDEV RAJNIKANT
12845861	8815773	20110028323	250	07/29/2010	Herbicidal Combination	BRANSON,DANIEL	SHROFF, JAIDEV RAJNIKANT
12863235	Not Issued	20110015066	161	07/16/2010	Herbicidal Composition	HOLT,ANDRIAE	SHROFF, JAIDEV RAJNIKANT
13043328	Not Issued	20110212151	161	03/08/2011	Synergistic Insecticidal Composition Containing Chloronicotynyle and Pyrethroids Compounds	LEVY,NEIL	SHROFF, JAIDEV RAJNIKANT
13520221	Not Issued	20120322661	161	08/22/2012	Organized Liquid Mixture	ANTHOPOLOS,PETER	SHROFF, JAIDEV RAJNIKANT
13576181	9289979	20120309627	150	07/31/2012	Microencapsulated Pendimethalin Comprising Alkali or Alkaline Earth Metal Salt of Organic Acid	ROBINSON,LISBETH	SHROFF, JAIDEV RAJNIKANT
13582984	9034795	20120329656	150	09/05/2012	Stable Capsule Suspension of Clomazone	PALLAY,MICHAEL	SHROFF, JAIDEV RAJNIKANT
13839979	9307765	20140274717	150	03/15/2013	SELECTIVE WEED CONTROL USING D-NAPROPAMIDE	PRYOR,ALTON	SHROFF, JAIDEV RAJNIKANT
13882580	8957788	20130217900	150	04/30/2013	CHIRAL INTERMEDIATES USEFUL FOR THE PREPARATION OF HYDROXYPHOSPHINE LIGANDS	MAURO,JOHN	SHROFF, JAIDEV RAJNIKANT
13963140	Not Issued	20140044765	161	08/09/2013	STABLE FORMULATION	LAZARO,DOMINIC	SHROFF, JAIDEV RAJNIKANT
14212262	9155308	20140274693	150	03/14/2014	Agricultural Pesticide Formulation	PRYOR,ALTON	SHROFF, JAIDEV RAJNIKANT
14238009	9254577	20140200141	150	02/10/2014	HERBICIDAL FORMULATION	SHIN,MONICA	SHROFF, JAIDEV RAJNIKANT

14836582	9AS,282	2●15●272125	150	04/18/2015	Fungicidal Composition Comprising Mancozeb and Chlorothalonil	POLANSKY,GREGG	SHROFF, JAIDEV RAJNIKANT
14674202	9370172	2●15●201614	150	03/31/2015	Stable encapsulated formulation of clomazone	PALLAY,MICHAEL	SHROFF, JAIDEV RAJNIKANT
14773328	9578675	20160007593	150	09/05/2015	FUNGICIDAL COMPOSITION	JAVANMARD,SAHAR	SHROFF, JAIDEV RAJNIKANT
14826812	9596886	20160120177	150	12/08/2015	Agrochemical Formulations	PRYOR,ALTON	SHROFF, JAIDEV RAJNIKANT
14961394	Not Issued	20160081344	161	12/07/2015	Agricultural Pesticide Formulations	NIELSEN,THOR	SHROFF, JAIDEV RAJNIKANT
15029785	9694741	20160270392	150	04/15/2016	AGROCHEMICAL COMPOSITIONS HAVING INCREASED RAINFASTNESS	PRYOR,ALTON	SHROFF, JAIDEV RAJNIKANT
15039463	9782544	20160360751	150	05/26/2016	A METHOD FOR CONTROLLING RUST	MURRAY,JEFFREY	SHROFF, JAIDEV RAJNIKANT
15057745	10342230	20160174551	150	03/01/2016	A ZC COMPOSITION COMPRISING MICROENCAPSULATED PENDIMETHALIN	SULLIVAN,DANIELLE	SHROFF, JAIDEV RAJNIKANT
15094397	10080368	20160219877	150	04/08/2016	SELECTIVE WEED CONTROL USING D-NAPROPAMIDE	PRYOR,ALTON	SHROFF, JAIDEV RAJNIKANT
15115553	10286925	20170181434	150	07/29/2016	STABLE HERBICIDAL COMPOSITIONS	HIRT,ERIN	SHROFF, JAIDEV RAJNIKANT
15482515	10172348	20180000072	150	04/07/2017	LOW TOXICITY COMPOSITION	HUI,SAN MING	SHROFF, JAIDEV RAJNIKANT
15544717	10336685	20170369423	150	07/19/2017	CRYSTALLINE MODIFICATION OF PROPANIL	PRYOR,ALTON	SHROFF, JAIDEV RAJNIKANT
15564982	10781372	20180305618	150	10/06/2017	WATER ABSORBENT COMPOSITION	ANTHONY,JOSEPH	SHROFF, JAIDEV RAJNIKANT
15673311	10094744	20170332636	150	08/09/2017	METHOD FOR CONTROLLING RUST	WANG,SHENGJUN	SHROFF, JAIDEV RAJNIKANT
15673313	10362782	20170332637	150	08/09/2017	METHOD FOR CONTROLLING RUST	WANG,SHENGJUN	SHROFF, JAIDEV RAJNIKANT
15673316	10492638	20170332638	150	08/09/2017	METHOD FOR CONTROLLING RUST	WANG,SHENGJUN	SHROFF, JAIDEV RAJNIKANT
15721175	10701935	20180020665	150	09/29/2017	METHOD FOR CONTROLLING RUST	WANG,SHENGJUN	SHROFF, JAIDEV RAJNIKANT
15752213	10225284	20180228147	150	02/13/2018	SOLID AGROCHEMICAL COMPOSITIONS	SCHLIENTZ,NATHAN	SHROFF, JAIDEV RAJNIKANT
15754269	10694743	20180228156	150	04/16/2018	METHOD FOR CONTROLLING RUST	WANG,SHENGJUN	SHROFF, JAIDEV RAJNIKANT
15991862	10660337	20180368412	150	05/29/2018	STABLE AGROCHEMICAL COMPOSITION AND PROCESS THEREOF	SHIAO,REI TSANG	SHROFF, JAIDEV RAJNIKANT
16149127	10405234	20190021320	150	09/24/2018	SELECTIVE WEED CONTROL USING D-NAPROPAMIDE	PRYOR,ALTON	SHROFF, JAIDEV RAJNIKANT
16323144	Not Issued	20190166845	41	02/04/2019	METHODS OF TREATMENT AND PREVENTION OF WHITE SPOT IN MAIZE CROPS	RODRIGUEZ,RAYNA	SHROFF, JAIDEV RAJNIKANT
16337871	10934259	20200031772	150	03/28/2019	PROCESS FOR PREPARATION OF BOSCALID ANHYDRATE FORM I AND BOSCALID ANHYDRATE FORM II	SOLOLA,TAOFIQ	SHROFF, JAIDEV RAJNIKANT
16344692	Not Issued	20190261631	30	04/25/2019	STABLE HERBICIDAL COMPOSITIONS	SILVERMAN,JANICE	SHROFF, JAIDEV RAJNIKANT
16347283	Not Issued	20190274307	30	05/03/2019	FUNGICIDAL COMBINATIONS	HAGHIGHATIAN,MINA	SHROFF, JAIDEV RAJNIKANT
16348563	Not Issued	20190269135	71	05/09/2019	TERNARY HERBICIDAL COMBINATION	CHUI,MEI PING	SHROFF, JAIDEV RAJNIKANT
16395258	10870328	20190248734	150	04/26/2019	CRYSTALLINE MODIFICATION OF PROPANIL	PRYOR,ALTON	SHROFF, JAIDEV RAJNIKANT

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(**Not for submission under 37 CFR 1.99)**

Application Number	16347283
Filing Date	2019-05-03
First Named Inventor	Carlos Eduardo FABRI
Art Unit	1616
Examiner Name	Mina Haghighatian
Attorney Docket Number	UP20010US

U.S.PATENTS

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	1	2006037632	WO	WO	2006-04-13	SYNGENTA PARTICIPATIONS AG		☐
	2	2006037634	WO	A1	2006-04-13	SYNGENTA PARTICIPATIONS AG		☐
	3	2013127818	WO	A1	2013-09-06	BASF SCHWEIZ AG		☐

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(**Not for submission under 37 CFR 1.99)**

Application Number	16347283
Filing Date	2019-05-03
First Named Inventor	Carlos Eduardo FABRI
Art Unit	1616
Examiner Name	Mina Haghighatian
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Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(**Not for submission under 37 CFR 1.99)**

Application Number	16347283
Filing Date	2019-05-03
First Named Inventor	Carlos Eduardo FABRI
Art Unit	1616
Examiner Name	Mina Haghighatian
Attorney Docket Number	UP20010US

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

☐ That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

☐ See attached certification statement.

☐ The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Karen A. LeCuyer/	Date (YYYY-MM-DD)	2021-04-22
Name/Print	Karen A. LeCuyer	Registration Number	51928

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Electronic Patent Application Fee Transmittal

Application Number:	16347283
Filing Date:	03-May-2019
Title of Invention:	FUNGICIDAL COMBINATIONS
First Named Inventor/Applicant Name:	Carlos Eduardo FABRI
Filer:	Karen A. LeCuyer/Nicholas Reginio
Attorney Docket Number:	UP20010US (FPAA06284)

Filed as Large Entity

Filing Fees for U.S. National Stage under 35 USC 371

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
RCE- 1ST REQUEST	1801	1	1360	1360
		Total in USD ($)		**1360**

Electronic Acknowledgement Receipt

EFS ID:	42528701
Application Number:	16347283
International Application Number:	
Confirmation Number:	4341
Title of Invention:	FUNGICIDAL COMBINATIONS
First Named Inventor/Applicant Name:	Carlos Eduardo FABRI
Customer Number:	23413
Filer:	Karen A. LeCuyer/Nicholas Reginio
Filer Authorized By:	Karen A. LeCuyer
Attorney Docket Number:	UP20010US (FPAA06284)
Receipt Date:	22-APR-2021
Filing Date:	03-MAY-2019
Time Stamp:	17:09:58
Application Type:	U.S. National Stage under 35 USC 371

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$1360
RAM confirmation Number	E20214LH10503248
Deposit Account	061130
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1	Response After Final Action	8QQ5103.pdf	113646 89525c80623e2c69e1630f9e2360c07856aCbb4d	no	11

Warnings:

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2	Request for Continued Examination (RCE)	8QQ4582.PDF	697613 767d87c79f32e4bbc655ddfccdd720f586c03ee0	no	3

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5	Foreign Reference	8DO7442.PDF	5139484 affeb8d02aa29ac2dc848fd550c42488bc79b084	no	139

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6	Foreign Reference	8DG9061.PDF	3340700 ad1da1a497f90fd9f61c7fc8af0f0800c89ca206	no	71

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7	Fee Worksheet (SB06)	fee-info.pdf	2e35e85b0d0b4884be201ecbf53b0746243b99d32	no	2

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Named Inventor:	Carlos Eduardo Fabri	)
Serial No.:	16/347,283	) Group Art Unit: 1616
Filed:	05/03/2019	) Examiner: Mina Haghighatian
For:	FUNGICIDAL COMBINATIONS	) Confirmation No.: 4341

VIA ELECTRONIC FILING
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

AMENDMENT WITH RCE

Sir:

This Amendment and RCE submitted in response to the FINAL Office Action dated January 22, 2021. Please amend the Application as follows:

IN THE CLAIMS

1. (Currently Amended) A fungicidal combination ~~comprising~~ consisting of benzovindiflupyr, mancozeb, and at least another fungicide selected from an ergosterol biosynthesis inhibitor fungicide, and a quinone outside inhibitor fungicide,

wherein the ergosterol biosynthesis inhibitor is selected from azaconazole, bitertanol, bromuconazole, cyproconazole, difenoconazole, diniconazole, epoxiconazole, etaconazole, fenbuconazole, fluquinconazole, flusilazole, flutriafol, hexaconazole, imibenconazole, ipconazole, metconazole, myclobutanil, penconazole, propiconazole, simeconazole, tebuconazole, tetraconazole, triadimefon, triadimenol, triticonazole, prothioconazole, imazalil, oxpoconazole, pefurazoate, prochloraz, triflumizole, fenarimol, nuarimol, pyrifenox , pyrisoxazole, triforine, and mixtures thereof, and

wherein the quinone outside inhibitor fungicide is selected from azoxystrobin, coumoxystrobin, enoxastrobin, flufenoxystrobin, picoxystrobin, pyraoxystrobin, mandestrobin, pyraclostrobin, pyrametostrobin, triclopyricarb, kresoxim-methyl, dimoxystrobin, fenaminostrobin, metominostrobin, trifloxystrobin, famoxadone, fluoxastrobin, fenamidone, pyribencarb, and mixtures thereof.

2. (Cancelled)

3. (Cancelled)

4. (Cancelled)

5. (Cancelled)

6. (Cancelled)

7. (Cancelled)

8. (Cancelled)

9. (Currently Amended) A fungicidal combination ~~comprising~~ consisting of benzovindiflupyr, mancozeb, ~~and at least two additional fungicides selected from~~ an ergosterol biosynthesis inhibitor fungicide, and a quinone outside inhibitor fungicide,

wherein the ergosterol biosynthesis inhibitor is selected from azaconazole, bitertanol, bromuconazole, cyproconazole, difenoconazole, diniconazole, epoxiconazole, etaconazole, fenbuconazole, fluquinconazole, flusilazole, flutriafol, hexaconazole, imibenconazole, ipconazole, metconazole, myclobutanil, penconazole, propiconazole, simeconazole, tebuconazole, tetraconazole, triadimefon, triadimenol, triticonazole, prothioconazole, imazalil, oxpoconazole, pefurazoate, prochloraz, triflumizole, fenarimol, nuarimol, pyrifenox , pyrisoxazole, triforine, and mixtures thereof; and

wherein the quinone outside inhibitor fungicide is selected from azoxystrobin, coumoxystrobin, enoxastrobin, flufenoxystrobin, picoxystrobin, pyraoxystrobin, mandestrobin, pyraclostrobin, pyrametostrobin, triclopyricarb, kresoxim-methyl, dimoxystrobin, fenaminostrobin, metominostrobin, trifloxystrobin, famoxadone, fluoxastrobin, fenamidone, pyribencarb, and mixtures thereof.

10. (Currently Amended) The combination as claimed in claim 1, ~~comprising~~ wherein the at least another fungicide is cyproconazole, difenoconazole, epoxiconazole, hexaconazole, hexaconazole, tebuconazole, tetraconazole, prothioconazole, azoxystrobin, picoxystrobin, pyraclostrobin, kresoxim-methyl, trifloxystrobin, or a combination~~s~~ thereof, ~~as the at least another fungicide.~~

11. (Currently Amended) The combination as claimed in claim 1, ~~comprising~~ wherein the at least another fungicide is prothioconazole and/or azoxystrobin, ~~as the at least another fungicide.~~

12. (Currently Amended) A composition consisting of~~comprising~~:

at least one agrochemically acceptable excipient; and

a fungicidal combination of:

(a) benzovindiflupyr;

(b) mancozeb; and

(c) at least one ergostrol biosynthesis inhibitor and/or at least one quinone outside inhibitor; and

~~(d) at least one agrochemically acceptable excipient.~~

wherein the ergosterol biosynthesis inhibitor is selected from azaconazole, bitertanol, bromuconazole, cyproconazole, difenoconazole, diniconazole, epoxiconazole, etaconazole, fenbuconazole, fluquinconazole, flusilazole, flutriafol, hexaconazole, imibenconazole, ipconazole, metconazole, myclobutanil, penconazole, propiconazole, simeconazole, tebuconazole, tetraconazole, triadimefon, triadimenol, triticonazole, prothioconazole, imazalil, oxpoconazole, pefurazoate, prochloraz, triflumizole, fenarimol, nuarimol, pyrifenox , pyrisoxazole, triforine, and mixtures thereof; and

wherein the quinone outside inhibitor fungicide is selected from azoxystrobin, coumoxystrobin, enoxastrobin, flufenoxystrobin, picoxystrobin, pyraoxystrobin, mandestrobin, pyraclostrobin, pyrametostrobin, triclopyricarb, kresoxim-methyl, dimoxystrobin, fenaminostrobin, metominostrobin, trifloxystrobin, famoxadone, fluoxastrobin, fenamidone, pyribencarb, and mixtures thereof.

13. (Previously Presented) The composition as claimed in claim 12, wherein the composition is formulated into wettable powders, granules, dusts, soluble (liquid) concentrates, suspension concentrates, oil in water emulsion, water in oil emulsion, emulsifiable concentrates, capsule suspensions, a combination of a suspension concentrate (SC) and a capsule suspension (CS), or oil dispersions.

14. (Currently Amended) The combination as claimed in claim 1, wherein the benzovindiflupyr and mancozeb are admixed in ratio of 1:80 to 80:1~~(1:80), (1:80), (1:80), (1:80)~~.

15. (Previously Presented) The composition as claimed in claim 12, wherein the total amount of benzovinidiflupyr in the composition is in the range of 0.1 to 99% by weight,

the total amount of mancozeb in the composition is in the range of 0.1 to 99% by weight; the total amount of ergostrol biosynthesis inhibitor in the composition is in the range of 0.1 to 99% by weight; and the total amount of quinone outside inhibitor in the composition is in the range of 0.1 to 99% by weight.

16. (Currently Amended) A method of foliar application, consisting of ~~comprising~~ applying the combination of claim 1 to the foliage of a plant.

17. (Currently Amended) A method of controlling fungal diseases in plants consisting of ~~comprising~~, applying to the locus of the plant a combination ~~comprising~~ consisting of:

(a) benzovindiflupyr;

(b) at least one quinone outside inhibitor and/or at least one ergostrol biosynthesis inhibitor; and

(c) mancozeb,

wherein the ergosterol biosynthesis inhibitor is selected from azaconazole, bitertanol, bromuconazole, cyproconazole, difenoconazole, diniconazole, epoxiconazole, etaconazole, fenbuconazole, fluquinconazole, flusilazole, flutriafol, hexaconazole, imibenconazole, ipconazole, metconazole, myclobutanil, penconazole, propiconazole, simeconazole, tebuconazole, tetraconazole, triadimefon, triadimenol, triticonazole, prothioconazole, imazalil, oxpoconazole, pefurazoate, prochloraz, triflumizole, fenarimol, nuarimol, pyrifenox , pyrisoxazole, triforine, and mixtures thereof, and

wherein the quinone outside inhibitor fungicide is selected from azoxystrobin, coumoxystrobin, enoxastrobin, flufenoxystrobin, picoxystrobin, pyraoxystrobin, mandestrobin, pyraclostrobin, pyrametostrobin, triclopyricarb, kresoxim-methyl, dimoxystrobin, fenaminostrobin, metominostrobin, trifloxystrobin, famoxadone, fluoxastrobin, fenamidone, pyribencarb, and mixtures thereof.

REMARKS

Claims 1 and 7-17 are pending in the present Application. Claims 7 and 8 have been cancelled, claims 1, 9-12, 14, 16, and 17 have been amended, and no claims have been added, leaving claims 1 and 9-17 for consideration.

Support for the amendments to claims 1, 9, 12, and 17 can be found on page 10, paragraphs 3 and 5 of the application as filed.

Claims 10 and 11 have been amended to be consistent with amended base claim 1.

Claim 14 has been amended to improve clarity.

No new matter is added by these amendments.

Reconsideration and allowance of the claims are respectfully requested in view of the above amendments and the following remarks.

Claim Rejections Under 35 U.S.C. § 112(b)

Claim 14 stands rejected under 35 U.S.C. § 112(b), as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In particular, the Office takes the position that claim 14 is indefinite for reciting combination of claim 1, wherein the constituent fungicides are admixed in a ratio of (1-80): (1-80): (1-80): (1:80) because the claim recites 2 constituents and it is not clear what 1:80 is referring to.

In response, claim 14 has been amended to clarify that the benzovindiflupyr and mancozeb are admixed in ratio of 1:80 to 80:1. Applicants submit that amended claim 14 is clear and satisfies the written description.

Reconsideration and withdrawal of the rejection are respectfully requested.

Claim Rejections Under 35 U.S.C. § 103

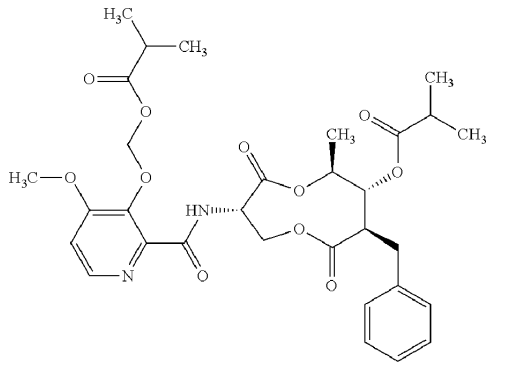
Claims 1 and 7-17 stand rejected under 35 U.S.C. § 103, as allegedly being obvious over United States Patent Publication No. 20150181870 to Kemmitt et al. (hereinafter "Kemmitt")

Instant claim 1 is directed to a fungicidal combination consisting of benzovindiflupyr, mancozeb, and at least another fungicide selected from an ergosterol biosynthesis inhibitor

fungicide, and a quinone outside inhibitor fungicide, where each of the ergosterol biosynthesis inhibitor fungicide and the quinone outside inhibitor fungicide has been limited to a list of specific compounds.

Kemmitt discloses a fungicidal composition containing a fungicidally effective amount of a compound of Formula I:

Formula I



(3S,6S,7R,8R)-8-benzyl-3-(3-((isobutyryloxy)methoxy)-4-methoxypicolinamido)-6-methyl-4,9-dioxo-1,5-dioxonan-7-yl isobutyrate, and at least one fungicide selected from the group consisting of fluoxastrobin, trifloxystrobin, and picoxystrobin. (Abstract) Kemmitt teaches that the composition provides synergistic control of selected fungi. (Abstract) Accordingly, the composition disclosed in Kemmitt contains the compound of Formula I as an essential component.

The compound of Formula I is not benzovindiflupyr, mancozeb, or the at least another fungicide as defined in instant claim 1. By using the "consisting of" language, the compound of Formula I required by Kemmitt has been excluded from the combination of instant claim 1. In *KSR*, the Court stated that to find obviousness, "it can be important to identify a reason that would have prompted a person of ordinary skill in the art in the relevant field to combine the elements in the way the claimed new invention does." *KSR Int'l Co. v. Teleflex Inc.*, 127 S.Ct. 1727, 1741 (2007). Because Kemmitt does not provide a reason to omit the compound of Formula I, an artisan would not have had a reason to do so and provide a fungicide combination as claimed in instant claim 1 or the claims depending therefrom. For at least the same reasons, Kemmitt would not have led one skilled in the art to the subject matter of instant claims 9, 12, 17, or the claims

depending therefrom.

Reconsideration and withdrawal of the rejection are respectfully requested.

Claims 1 and 7-17 stand rejected under 35 U.S.C. § 103, as allegedly being obvious over World Intellectual Property Organization Publication No. 2015079334 to De Oliveira et al. using its United States Patent Publication No. 20160360751 (hereinafter "De Oliveira") in view of European Patent Publication 2783569 to Grammenos et al. (hereinafter "Grammenos").

De Oliveira teaches a fungicidal combination for treating soybean rust infection in a host leguminous plant, wherein the combination comprises a first dithiocarbamate fungicide, and at least a second fungicide selected from a demethylation inhibitor, quinone outside inhibitor, succinate dehydrogenase inhibitor, quinone inside inhibitor or combinations thereof. (Paragraph [0034])

De Oliveira discloses numerous dithiocarbamate fungicides, demethylation inhibitors, quinone outside inhibitors, succinate dehydrogenase inhibitors, and quinone inside inhibitors. However, De Oliveira is silent about benzovindiflupyr, and does not teach a combination consists of benzovindiflupyr, mancozeb, and at least another fungicide selected from an ergosterol biosynthesis inhibitor fungicide, and quinone outside inhibitor fungicide as defined in the instant claims.

Grammenos discloses a composition comprising 1) 2-[2-chloro-4-(4-chlorophenoxy)phenyl]-1,3-bis(1,2,4-triazol-1-yl)propan-2-ol; and 2) as component II an active ingredient, selected from groups A) to O). Benzovindiflupyr is mentioned in passing as a carboxamide among five and half pages of possible component II.

When De Oliveira and Grammenos are read in a whole, they do not fairly teach one skilled in the art to select and pick among numerous possibilities disclosed therein to arrive at the specific combination as set forth in the instant claims. The technical effects achieved by the claimed combinations, i.e., an enhancement of the efficacy, and a surprising reduction in fungal disease incidence when mancozeb is added to the claimed combinations. For at least the above reasons, De Oliveira in view of Grammenos does not disclose or suggest the subject matter of instant claims.

Reconsideration and withdrawal of the rejection are respectfully requested.

Claims 1 and 7-17 stand rejected under 35 U.S.C. § 103, as allegedly being obvious over United States Patent Publication No. 20090131462 to Gewehr et al. (hereinafter "Gewehr") in view of Kemmitt.

Gewehr discloses a fungicidally active agent containing at least one other defined fungicide in addition to the fungicide N-[2-(1,3-dimethylbutyl)-3-thienyl]-1-methyl-3-(trifluormethyl)-1H-pyrazol-4-carboxamide (penthiopyrad). (Abstract) In particular, Gewehr discloses that it is an object of the its invention to improve the activity of penthiopyrad in the control of harmful fungi and/or increase the activity of conventional fungicides. (Paragraph [0005]) Gewehr teaches that this object is achieved by using penthiopyrad in combination with particular fungicides. (Paragraph [0006])

Penthiopyrad required by the compositions disclosed in Gewehr is not benzovindiflupyr, mancozeb, or the at least another fungicide as defined in the instant claims. By using the "consisting of" language, penthiopyrad required by Gewehr has been excluded from the instant claims. In *KSR*, the Court stated that to find obviousness, "it can be important to identify a reason that would have prompted a person of ordinary skill in the art in the relevant field to combine the elements in the way the claimed new invention does." *KSR Int'l Co. v. Teleflex Inc.*, 127 S.Ct. 1727, 1741 (2007). Because Gewehr does not provide a reason to omit penthiopyrad, an artisan would not have had a reason to do so and provide a fungicide combination as claimed in the instant claims.

Kemmitt is cited as allegedly teaching the benzovindiflupyr component but it does not cure the deficiencies of Gewehr. Accordingly, Gewehr in view of Kemmitt does not disclose or suggest the subject matter of the instant claims.

Reconsideration and withdrawal of the rejection are respectfully requested.

Double Patenting

Claims 1 and 7-17 stand provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-7 of U.S. Patent No. 10,694,744 to Oliveira et al. (hereinafter "Oliveira '744") in view of Kemmitt.

Claims 1 and 7-17 stand provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-12 of U.S. Patent No. 10,362,782 to Oliveira et al. (hereinafter "Oliveira '782") in view of Kemmitt.

Claims 1, 8, 12 and 16-17 stand provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 10,537,101 to Oliveira et al. (hereinafter "Oliveira '101") in view of Kemmitt.

Claims 1, 8, 12 and 16-17 stand provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 10,694,745 to Oliveira et al. (hereinafter "Oliveira '745") in view of Kemmitt.

Claims 1, 8, 12 and 16-17 stand provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 10,448,636 to Oliveira et al. (hereinafter "Oliveira '636") in view of Kemmitt.

Applicants thank the Examiner for pointing out the potential obviousness-type double patenting issue between the claims of the present application and those of Oliveira in view of Kemmitt. In view of the possibility that claims in the present application will be further amended before allowance, Applicants will defer responding to this provisional rejection until claims in the present application are otherwise allowable, and it is determined whether this provisional rejection becomes an actual rejection.

Claims 1 and 7-17 stand provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-6 of copending Application Serial No. 16/785,313 to Oliveira et al. (hereinafter "Oliveira '313")

As neither case has been issued or allowed, the claims are not final in both cases. It therefore not possible to make any determination as to double patenting or obviousness at this time. Hence, it is requested that this rejection be held in abeyance at least until the present claims are allowed and the '313 case has issued. MPEP § 804.01.I(B)(1).

It is believed that the foregoing amendments and remarks fully comply with the Office Action and that the claims herein should now be allowable to Applicants. Accordingly, reconsideration and allowance are requested.

If there are any additional charges with respect to this Amendment or otherwise, including for any necessary extensions of time under 37 C.F.R. 1.136(a) or 1.136(b), for which the Applicants hereby respectfully petition, please charge them to Deposit Account No. 06-1130.

Respectfully submitted,
CANTOR COLBURN LLP

/Karen A. LeCuyer /

Date: April 22, 2021

By: _____
Karen A. LeCuyer
Registration No. 51,928

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Doc code: RCEX
Doc description: Request for Continued Examination (RCE)

PTO/SB/30EFS (07-09)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

REQUEST FOR CONTINUED EXAMINATION(RCE)TRANSMITTAL
(Submitted Only via EFS-Web)

Application Number	16347283	Filing Date	2019-05-03	Docket Number (if applicable)	UP20010US	Art Unit	1616
First Named Inventor	Carlos Eduardo Fabri			Examiner Name	Mina Haghighatian		

This is a Request for Continued Examination (RCE) under 37 CFR 1.114 of the above-identified application.
Request for Continued Examination (RCE) practice under 37 CFR 1.114 does not apply to any utility or plant application filed prior to June 8, 1995, or to any design application. The Instruction Sheet for this form is located at WWW.USPTO.GOV

SUBMISSION REQUIRED UNDER 37 CFR 1.114

Note: If the RCE is proper, any previously filed unentered amendments and amendments enclosed with the RCE will be entered in the order in which they were filed unless applicant instructs otherwise. If applicant does not wish to have any previously filed unentered amendment(s) entered, applicant must request non-entry of such amendment(s).

☐ Previously submitted. If a final Office action is outstanding, any amendments filed after the final Office action may be considered as a submission even if this box is not checked.

☐ Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____

☐ Other

☒ Enclosed

☒ Amendment/Reply

☒ Information Disclosure Statement (IDS)

☐ Affidavit(s)/ Declaration(s)

☐ Other

MISCELLANEOUS

☐ Suspension of action on the above-identified application is requested under 37 CFR 1.103(c) for a period of months _____
(Period of suspension shall not exceed 3 months; Fee under 37 CFR 1.17(i) required)

☐ Other

FEES

☒ **The RCE fee under 37 CFR 1.17(e) is required by 37 CFR 1.114 when the RCE is filed.**
The Director is hereby authorized to charge any underpayment of fees, or credit any overpayments, to Deposit Account No 061130

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

X Patent Practitioner Signature
Applicant Signature

EFS - Web 2.1.15

PTO/SB/30EFS (07-09)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Signature of Registered U.S. Patent Practitioner

Signature	/Karen A. LeCuyer/	Date (YYYY-MM-DD)	2021-04-22
Name	Karen A. LeCuyer	Registration Number	51928

This collection of information is required by 37 CFR 1.114. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

PTO/SB/06 (09-11)
Approved for use through 1/31/2014. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 16/347,283	Filing Date 05/03/2019	☐ To be Mailed

ENTITY: ☑ LARGE ☐ SMALL ☐ MICRO

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA		RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A		N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A		N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*		x $100 =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*		x $460 =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).				
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))					
* If the difference in column 1 is less than zero, enter "0" in column 2.				TOTAL	

APPLICATION AS AMENDED - PART II

AMENDMENT	04/22/2021	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 10	Minus	** 20	= 0		x $100 =	0
	Independent (37 CFR 1.16(h))	* 3	Minus	*** 3	= 0		x $480 =	0
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	0

AMENDMENT		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=		x $0 =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=		x $0 =	
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.	LIE
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".	/LINDA HUMES/
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".	
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.	

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/347,283	05/03/2019	Carlos Eduardo FABRI	UP20010US (FPAA06284)	4341

23413 7590 01/22/2021
CANTOR COLBURN LLP
20 Church Street
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Hartford, CT 06103

EXAMINER	
HAGHIGHATIAN, MINA	

ART UNIT	PAPER NUMBER
1616	

NOTIFICATION DATE	DELIVERY MODE
01/22/2021	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

usptopatentmail@cantorcolburn.com

PTOL-90A (Rev. 04/07)

Office Action Summary

Application No.	Applicant(s)		
16/347,283	FABRI et al.		
Examiner	**Art Unit**	**AIA (FITF) Status**	
Mina Haghighatian	1616	Yes	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☑ Responsive to communication(s) filed on 11/11/20.

☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on ____.

2a)☑ This action is **FINAL.** 2b) ☐ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on ____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

5) ☑ Claim(s) 1 and 7-17 is/are pending in the application.

5a) Of the above claim(s) ____ is/are withdrawn from consideration.

6) ☐ Claim(s) ____ is/are allowed.

7) ☑ Claim(s) 1 and 7-17 is/are rejected.

8) ☐ Claim(s) ____ is/are objected to.

9) ☐ Claim(s) ____ are subject to restriction and/or election requirement

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to **PPHfeedback@uspto.gov.**

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☐ The drawing(s) filed on ____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a)☐ All b)☐ Some** c)☐ None of the:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. ____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

** See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☑ Notice of References Cited (PTO-892)

2) ☐ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date _____.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date ____.

4) ☐ Other: _____.

DETAILED ACTION

Notice of Pre-AIA or AIA Status

The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the **AIA**.

Receipt is acknowledged of Amendments and Remarks filed on 11/11/20. Claims 1 and 7-17 have been amended, claims 2-6 have been canceled and no new claims have been added. Accordingly, claims **1 and 7-17** have been presented for examination on the merits.

Rejections and/or objections not reiterated from the previous Office Action are hereby withdrawn. The following rejections and/or objections are either reiterated or newly applied. They constitute the complete set of rejections and/or objections presently being applied to the instant application.

Suggestions:

The amended language of claims is presented in a greyed out form and is almost Illegible (too pale to read). Applicant is required to be in a legible form.

Also the compound/fungicide ipconazole remains capitalized in claim 7. Should be corrected.

Claim Rejections - 35 USC § 112

The following is a quotation of 35 U.S.C. 112(b):

> (b) CONCLUSION.—The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the inventor or a joint inventor regards as the invention.

The following is a quotation of 35 U.S.C. 112 (pre-AIA), second paragraph:
> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 14 is rejected under 35 U.S.C. 112(b) or 35 U.S.C. 112 (pre-AIA), second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the inventor or a joint inventor (or for applications subject to pre-AIA 35 U.S.C. 112, the applicant), regards as the invention.

Claim 14 is indefinite for reciting combination of claim 1, wherein the constituent fungicides are admixed in a ratio of (1-80): (1-80): (1-80): (1:80). This ratio is indefinite because the claim recites 2 constituents and 2- it is not clear what 1:80 is referring to.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103 which forms the basis for all obviousness rejections set forth in this Office action:

> A patent for a claimed invention may not be obtained, notwithstanding that the claimed invention is not identically disclosed as set forth in section 102, if the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to which the claimed invention pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103 are summarized as follows:

1. Determining the scope and contents of the prior art.

2. Ascertaining the differences between the prior art and the claims at issue.

3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1, 7-17 are rejected under 35 U.S.C. 103 as being unpatentable over Kemmitt et al (US 20150181870).

Kemmitt et al teach a fungicidal composition containing a fungicidally effective amount of a compound of Formula I: (3S,6S,7R,8R)-8-benzyl-3-(3-((isobutyryloxy)methoxy)-4-methoxypicolinamid- o)-6-methyl-4,9-dioxo-1,5-dioxonan-7-yl isobutyrate, and at least one fungicide selected from the group consisting of fluoxastrobin, trifloxystrobin, and picoxystrobin, provides synergistic control of selected fungi (See abstract).

The disclosure is to a **synergistic fungicidal composition** containing (a) a compound of Formula I, (3S,6S,7R,8R)-8-benzyl-3-(3-((isobutyryloxy)methoxy)-4-methoxypicolinamid- o)-6-methyl-4,9-dioxo-1,5-dioxonan-7-yl isobutyrate, and (b) **at least one fungicide** selected from the group consisting of a strobilurin, for example pyraclostrobin, fluoxastrobin, **azoxystrobin, trifloxystrobin, picoxystrobin,** and **kresoxim methyl**, a succinate dehydrogenase-inhibitor, for example: fluxapyroxad, **benzovindiflupyr**, **penthiopyrad,** isopyrazam, bixafen, boscalid, penflufen, and fluopyram, an ergosterol biosynthesis-inhibitor, for example **prothioconazole**, epoxiconazole, **cyproconazole**, myclobutanil, prochloraz, metconazole, difenconazole, **tebuconazole, tetraconazole**, fenbuconazole, propiconazole, fluquinconazole,

flusilazole, flutriafol, fenpropimorph, and prochloraz, and a multi-site-inhibitor, for example **mancozeb** and chlorothalonil, or other commercial fungicides to provide control of any plant fungal pathogen (See [0002] and [0020]).

The components of the said synergistic mixture can be **applied** either separately or as part of a **multipart fungicidal system** (See [0044]).

Kemmitt et al also disclose that the concentration **ratio** of Compound I to **benzovindiflupyr** is between about 1:4 and about 1:16 or 1:39 (See [0016], [0036] and Claims 7-8).

The said compositions are preferably applied in the form of a formulation comprising a composition of (a) a compound of Formula I and (b) at least one fungicide selected from the group consisting of fluoxastrobin, trifloxystrobin, picoxystrobin, benzovindiflupyr, and penthiopyrad, together with a **phytologically acceptable carrier** (See [0046]).

It is further disclosed that the said compositions may be in any form including **concentrated formulations** dispersed in water, or another liquid, for application, or **dust-like or granular**, aqueous suspensions or emulsions, wettable powders, or liquids, usually known as emulsifiable concentrates, aqueous suspensions, or suspension concentrates. The disclosure contemplates all vehicles by which the synergistic compositions can be formulated for delivery and use as a fungicide (See [0047]-[0050]).

Kemmitt t al disclose a method for the control and prevention of fungal attack on a plant, the method including: **applying** a fungicidally effective amount of a compound of Formula I and at least one fungicide, including fluoxastrobin, trifloxystrobin,

picoxystrobin, **benzovindiflupyr**, and penthiopyrad, wherein said effective amount is applied to at least one of the plant, an area adjacent to the plant, soil adapted to support growth of the plant, a root of the plant, **foliage** of the plant, and a seed adapted to produce the plant (See [0009]-[0010], [0059] and claims 12-13).

Kemmitt et al do not anticipate the claimed compositions or method but they provide sufficient teaching for one of ordinary skill in the art to make and use the invention as claimed.

It would have been *prima facie* obvious to a person of ordinary skilled in the art at the time the invention was made to have followed the teachings of Kemmitt et al to arrive at the instant invention.

One of ordinary skill in the art would have been motivated to follow Kemmitt et al's method to make a synergistic fungicidal composition that is suitable for treatment of various plants at fungicidal levels, while exhibiting low phytotoxicity. The synergistic composition is useful in a protectant or eradicant fashion. The said synergistic composition is effective in controlling a variety of undesirable fungi that infect useful plant crops. Kemmitt et al disclose the combination of different classes of fungicides that in combination provide the synergistic and superior protection and treatment to plants.

In other words, all the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded predictable results to one of ordinary skill in the art at the time of the invention.

Kemmitt et al do not expressly recite a ratio of benzovindiflupyr and mancozeb but they provide sufficient teaching to one of ordinary skill in the art to determine the most suitable ratio of the compounds. Kemmitt et al also do not expressly disclose a concentration range of different fungicides in the composition. However there is no criticality in a concentration range of from 0.1 to 99%. In other words, whatever concentration range one of ordinary skill in the art selects meets the claimed range. Additionally, one of ordinary skill in the art is more than capable of optimizing the ranges as desired. As the courts have held, "Where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation". *In re Aller*, 220 F. 2d 454, 105 USPQ 233 (CCPA 1955).

Claims 1, 7-17 are rejected under 35 U.S.C. 103 as being unpatentable over De Oliveira et al (WO 2015079334, using its US version, **US 20160360751) in view of Grammenos et al (EP 2783569).**

De Oliveira et al teach an improved method of treating soybean rust infection in a host leguminous plant, wherein the improvement comprises treating the plant at the locus of the infection with **a dithiocarbamate fungicide**, and at least another fungicide selected from a demethylation inhibitor, **quinone outside inhibitor**, **succinate dehydrogenase inhibitor**, quinone inside inhibitor or combinations thereof, and a fungicidal combination (See [0033]-[0035], [0037]).

The said **dithiocarbamate fungicide** is selected from amobem, ziram, dazomet, milneb, **mancozeb**, maneb, polycarbamate, propineb, zineb, etc (See [0039[-[0042]).

Disclosed is a method for treating soybean rust in a host leguminous plant, wherein the method comprises treating the plant at the locus of the infection with **mancozeb**; and **at least one systemic fungicide**, including the **quinone outside inhibitor,** selected from an imidazolinone fungicide, an oxazolidinedione fungicide or a strobilurin fungicide, such as **azoxystrobin**, pyraoxystrobin, kresoxim-methyl, **pyraclostrobin** and trifloxystrobin (See [0044], [0048]-[0049], [0053]).

The systemic fungicide may be a demethylation inhibitor (DMI inhibitor), selected from the group consisting of climbazole, clotrimazole, bromuconazole, **cyproconazole,** difenoconazole, epoxiconazole, propiconazole, **prothioconazole**, tebuconazole, tetraconazole, etc (See [0056]).

The systemic fungicide may be a **succinate dehydrogenase inhibitor** fungicide (SDHI). Preferably, the succinate dehydrogenase inhibitor is selected from the group consisting of benodanil, fluopyram, **bixafen**, fluxapyroxad, furametpyr, **isopyrazam**, penflufen, **penthiopyrad**, sedaxane and **boscalid** (See [0075]).

De Oliviera et al disclose that it has been found that a combination of **a multi-site** contact fungicide, preferably a dithiocarbamate fungicide, along with a systemic fungicide selected from at least one Qo inhibitor (Quinone outside inhibitors), at least one Qi (quinone inside) inhibitor, at least one DM inhibitor (demethylation inhibitor) or at least one SDH Inhibitor (succinate dehydrogenase inhibitors) leads to an unexpected and surprisingly good control of Soybean Rust as compared to other fungicides (see [0077]).

In a preferred embodiment, **the first and second systemic fungicides** are selected from **different classes** of systemic fungicides. For example: (i) when the first

systemic fungicide is a demethylation inhibitor, the second systemic fungicide is selected from a quinone outside inhibitor, a quinone inside inhibitor and succinate dehydrogenase inhibitor, etc, (See [0098]-[0102]).

The said fungicides or the combinations thereof are pre-formulated and may be in the form of water dispersible **granules** (WDG), wettable powders, **suspension** concentrates, emulsifiable concentrate, suspoemulsions, capsule suspensions etc. Adjuvants and ancillary ingredients may be used to formulate such pre formulated **compositions** and may employ wetters, adhesives, dispersants or surfactants and, if appropriate solvent or oil and other agriculturally acceptable additives. The said composition may comprise any of the said fungicidal combinations along with agriculturally acceptable excipients (See [0125]-[0127]).

De Oliviera et al lack a specific disclosure on the succinate dehydrogenase inhibitor fungicide (SDHI) being benzovindiflupyr. It would have been obvious to select benzovindiflupyr in view of the teaching of the art including Grammenos.

Grammenos et al teach compositions comprising a triazole compound and other fungicides. Disclosed are two-component, three-component and four component compositions wherein different fungicides are combined to treating and protecting plants against rust.

It is disclosed that the said compositions are suitable as fungicides. They are distinguished by an outstanding effectiveness against a broad spectrum of phytopathogenic fungi, including soil-borne fungi, which derive especially from the classes of the Plasmodiophoromycetes, Peronosporomycetes (syn. Oomycetes),

Chytridiomycetes, Zygomycetes, Ascomycetes, Basidiomycetes and Deuteromycetes (syn. Fungi imperfecti). Some are systemically effective and they can be used in crop protection as **foliar fungicides**, fungicides for seed dressing and soil fungicides. Moreover, they are suitable for controlling harmful fungi, which inter alia occur in wood or roots of plants.

Grammenos et al disclose that compound II is selected from carboxamides including **benzovindiflupyr**, bixafen, boscalid, fluopyram, fluxapyroxad, isopyrazam, penflufen, **penthiopyrad** and sedaxane.

It is also disclosed that the said compositions comprise a dithiocarbamate (also called multi-site action inhibitor) such as ferbam, **mancozeb,** maneb, zineb, etc.

Other suitable compounds include fluxapyroxad, fenpropimorph, **prothioconazole,** chlorothalonil, **azoxystrobin,** dimoxystrobin, fluoxastrobin, **kresoxim-methyl**, orysastrobin, picoxystrobin, pyraclostrobin and trifloxystrobin.

In the four-component compositions, the **weight ratio** of component I to the 1 st further active compound (component II') can be in the range of from 1:100 to 100:1, preferably in the range of from 1:50 to 50:1 and in particular in the range of from 1:20 to 20:1.

It would have been *prima facie* obvious to a person of ordinary skilled in the art at the time the invention was made to have combined the teachings of Grammenos et al with that of De Oliviera et al to arrive at the instant invention.

One of ordinary skill in the art would have been motivated to do so because both De Oliviera et al and Grammenos et al teach effective combination of fungicides to treat

or protect against fungal disease in plants. While De Oliviera et al teach a number of succinate dehydrogenase inhibitor fungicide (SDHI) including benodanil, fluopyram, **bixafen**, fluxapyroxad, furametpyr, **isopyrazam**, penflufen, **penthiopyrad**, sedaxane and **boscalid,** they do not recite benzovindiflupyr. However it is well known in the art as shown by Grammenos et al that benzovindiflupyr is an effective fungicide of the group. As such one of ordinary skill in the art is more than motivated to substitute one SDHI agent for another with a reasonable expectation of success.

It is generally considered to be prima facie obvious to substitute components which are taught by the prior art to be well known and useful for the same purpose in order to form a composition that is to be used for an identical purpose. The motivation for substituting them flows from their having been used in the prior art, and from their being recognized in the prior art as useful for the same purpose.

De Oliviera and Grammenos et al do not expressly recite a ratio of benzovindiflupyr and mancozeb but they provide sufficient teaching to one of ordinary skill in the art to determine the most suitable ratio of the compounds. The references also do not expressly disclose a concentration range of different fungicides in the composition. However there is no criticality in a concentration range of from 0.1 to 99%. In other words, whatever concentration range one of ordinary skill in the art selects meets the claimed range. Additionally, one of ordinary skill in the art is more than capable of optimizing the ranges as desired. As the courts have held, “Where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation”. *In re Aller*, 220 F. 2d 454, 105 USPQ 233 (CCPA 1955).

Claims 1, 7-17 are rejected under 35 U.S.C. 103 as being unpatentable over Gewehr et al (US 20090131462) in view of Kemmitt et al.

Gewehr et al teach a fungicidally active agent containing at least one other defined fungicide in addition to the fungicide N-[2-(1,3-dimethylbutyl)-3-thienyl]-1-methyl-3-(trifluormethyl)-1H-pyrazo- l-4-carboxamide (**penthiopyrad**), and a method for controlling pathogenic fungi using one such agent, and compositions comprising the said agent for controlling pathogenic fungi. Disclosed are compositions comprising the compound A and at least one fungicide B, to act on the fungi, their habitat or the materials, plants, seed, soils, areas or spaces to be protected against fungal attack. The application of active compounds A and B can be either simultaneously, that is jointly or separately, or in succession (See abstract, [0021]-[0022] and [0136]).

Disclosed are a fungicidally active **composition**, comprising: **penthiopyrad** and at least one further fungicide B selected from azole fungicides selected from the group consisting of **prothioconazole**, triticonazole, tetraconazole, **cyproconazole,** difenoconazole, dinitroconazole, epoxiconazole, fenbuconazole, fluquinconazole, flusilazole, metconazole,simeconazole, oxpoconazole, etc; or dithiocarbamate fungicides selected from the group consisting of maneb, **mancozeb,** metam, propineb, polycarbamate, thiram, ziram, zineb, etc; strobilurins, such as **azoxystrobin**, dimoxystrobin, enestroburin, fluoxastrobin, **kresoxim-methyl**, metominostrobin, orysastrobin, picoxystrobin, pyraclostrobin or trifloxystrobin (See [0010]-[0011], [0081], [0083] and [0090]).

It is disclosed that preferably, the weight ratio of component A to component B is from 200:1 to 1:200, more preferably from 100:1 to 1:100, e.g. from 2:1 to 1: 100, etc. In a special embodiment, the fungicide B is selected from fungicides of groups B.1 to B.5 and mixtures thereof. In a ternary composition, the fungicidally active compounds, comprise, in addition to component A, two different fungicides from group B. Consequently, higher compositions comprise three or more fungicides from group B (see [0058]-[0062]). In ternary compositions the ratio of the weight of compound A to the total weight of the two fungicides from group B is from 100:1 to 1:100, particularly preferably from 50:1 to 1:50 and especially from 10:1 to 1:10 (See [0064]).

Gewehr et al also disclose that aqueous application forms can be prepared, for example, from **emulsion concentrates**, suspensions, pastes, oil dispersions, wettable powders or water-dispersible granules by addition of water. The concentrations of fungicides A and B in the ready-to-use preparations can be varied within relatively wide ranges. In general, they are between 0.0001 and 10%, preferably between **0.01 and 1%** (% by weight total content of active compound, based on the total weight of the ready-to-use preparation). The fungicides A and B may also be used successfully in the ultra-low-volume process (ULV), it being possible to employ formulations comprising more than **95%** by weight of active compound, or even to apply the active compounds without additives (See [0070]-[0072]).

The compositions are preferably **applied** to the plants by spraying the **leaves**, for example, by customary spray techniques using spray liquor amounts of from about 100 to 1000 l/ha (for example from 300 to 400 l/ha) using the carrier water (See [0187]).

Gewehr et al disclose that "Surprisingly, the compositions according to the invention comprising the compound of the formula A and at least one fungicide from component B have better fungicidal activity against harmful fungi than would have been expected based on the fungicidal activity of the individual compounds, i.e. the fungicidal activity is increased in a superadditive manner" (See [0190]).

Gewehr et al teach a combination of penthiopyrad with other fungicides including mancozeb. Gewehr et al lack a specific disclosure on benzovindiflupyr. However it is known in the art such as Kemmitt et al that benzovindiflupyr and penthiopyrad are two species of the same genus and alternatively usable.

Kemmitt et al's disclosure is delineated above and incorporated herein.

In particular, Kemmitt et al disclose compositions applied in the form of a formulation comprising a composition of (a) a compound of Formula I and (b) at least one fungicide selected from the group consisting of fluoxastrobin, trifloxystrobin, picoxystrobin, **benzovindiflupyr**, and **penthiopyrad**, together with a phytologically acceptable carrier (See [0046]).

It would have been *prima facie* obvious to a person of ordinary skilled in the art at the time the invention was made to have combined the teachings of Kemmitt et al with that of Gewher et al to arrive at the instant invention.

One of ordinary skill in the art would have been motivated to do so because both Gewher et al and Kemmitt et al teach effective combination of fungicides to treat or protect against fungal disease in plants. Gewehr et al teach a combination of

penthiopyrad with other fungicides including mancozeb. However Gewehr et al lack a specific disclosure on benzovindiflupyr. Kemmitt et al teach that benzovindiflupyr and penthiopyrad are two species of the same genus and alternatively usable. As such one of ordinary skill in the art is more than motivated to substitute one species for another with a reasonable expectation of success.

It is generally considered to be prima facie obvious to substitute components which are taught by the prior art to be well known and useful for the same purpose in order to form a composition that is to be used for an identical purpose. The motivation for substituting them flows from their having been used in the prior art, and from their being recognized in the prior art as useful for the same purpose.

Gewher et al and Kemmitt et al do not expressly recite a ratio of benzovindiflupyr and mancozeb but they provide sufficient teaching to one of ordinary skill in the art to determine the most suitable ratio of the compounds. The references also do not expressly disclose a concentration range of different fungicides in the composition. However there is no criticality in a concentration range of from 0.1 to 99%. In other words, whatever concentration range one of ordinary skill in the art selects meets the claimed range. Additionally, one of ordinary skill in the art is more than capable of optimizing the ranges as desired. As the courts have held, “Where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation”. *In re Aller*, 220 F. 2d 454, 105 USPQ 233 (CCPA 1955).

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on nonstatutory double patenting provided the reference application or patent either is shown to be commonly owned with the examined application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement. See MPEP § 717.02 for applications subject to examination under the first inventor to file provisions of the AIA as explained in MPEP § 2159. See MPEP §§ 706.02(l)(1) - 706.02(l)(3) for applications not subject to examination under the first inventor to file provisions of the AIA. A terminal disclaimer must be signed in compliance with 37 CFR 1.321(b).

The USPTO Internet website contains terminal disclaimer forms which may be used. Please visit www.uspto.gov/patent/patents-forms. The filing date of the application in which the form is filed determines what form (e.g., PTO/SB/25, PTO/SB/26, PTO/AIA/25, or PTO/AIA/26) should be used. A web-based eTerminal Disclaimer may be filled out completely online using web-screens. An eTerminal Disclaimer that meets all requirements is auto-processed and approved immediately upon submission. For more information about eTerminal Disclaimers, refer to www.uspto.gov/patents/process/file/efs/guidance/eTD-info-I.jsp.

Claims 1, 7-17 are rejected on the ground of nonstatutory double patenting as being unpatentable over claims 1-7 of U.S. Patent No. **10,694,744** in view of Kemmitt et al (US 20150181870). Although the claims at issue are not identical, they are not patentably distinct from each other because the examined claims would have been obvious over the reference claims in view of Kemmitt et al.

Specifically the examined claims are drawn to a fungicidal combination or composition comprising benzovindiflupyr (a succinate dehydrogenase inhibitor fungicide) mancozeb and at least another fungicide selected from ergosterol biosynthesis inhibitor fungicide and quinone outside inhibitor fungicide. The compositions comprise the said combination and an adjuvant. Claims are also drawn to a method of foliar application of the said combination/composition.

The reference claims are drawn to a fungicidal combination, consisting of: (i) mancozeb; (ii) at least one succinate dehydrogenase inhibitor fungicide selected from the group consisting of isopyrazam, boscalid, etc; and (a) at least one quinone outside

inhibitor fungicide selected from the group consisting of fenamidone, famoxadone, and a strobilurin fungicide selected from the group consisting of azoxystrobin, pyraoxystrobin, kresoxim-methyl, etc, and/or (b) at least one demethylation inhibitor fungicide selected from the group consisting of triflumizole, fenarimol, nuarimol, triarimol, and a conazole fungicide selected from the group consisting of cyproconazole, prothioconazole, tetraconazole, etc, and (iii) at least one agriculturally acceptable excipient.

The difference is that the reference claims do not list benzovindiflupyr as the succinate dehydrogenase inhibitor fungicide. However it would have been obvious to substitute the species in view of the art such as Kemmitt et al teaching them as alternatively useable species.

Accordingly, the examined combination of fungicidal active agents would have been obvious over the reference claims in view of Kemmitt et al.

Claims 1, 7-17 are rejected on the ground of nonstatutory double patenting as being unpatentable over claims 1-12 of U.S. Patent No. **10,362,782** in view of Kemmitt et al (US 20150181870). Although the claims at issue are not identical, they are not patentably distinct from each other because the examined claims would have been obvious over the reference claims in view of Kemmitt et al.

Specifically the examined claims are drawn to a fungicidal combination or composition comprising benzovindiflupyr (a succinate dehydrogenase inhibitor fungicide) mancozeb and at least another fungicide selected from ergosterol biosynthesis inhibitor fungicide and quinone outside inhibitor fungicide. The

compositions comprise the said combination and an adjuvant. Claims are also drawn to a method of foliar application of the said combination/composition.

The reference claims are drawn to a fungicidal combination, consisting of: (i) mancozeb; (ii) prothioconazole, and (a) at least one succinate dehydrogenase inhibitor fungicide selected from the group consisting of isopyrazam, penflufen, penthiopyrad, sedaxane, and boscalid; or (b) at least one quinone outside inhibitor fungicides selected from the group consisting of fenamidone, famoxadone, and a strobilurin fungicide selected from the group consisting of azoxystrobin, pyraoxystrobin, pyraclostrobin and trifloxystrobin; or (c) at least one demethylation inhibitor fungicide selected from the group consisting of fenarimol, nuarimol, triarimol, and a conazole fungicide selected from the group consisting of clotrimazole, oxpoconazole, cyproconazole, prothioconazole, tebuconazole, tetraconazole,etc; and (iii) at least one agriculturally acceptable excipient.

The difference is that the reference claims do not list benzovindiflupyr as the succinate dehydrogenase inhibitor fungicide. However it would have been obvious to substitute the species in view of the art such as Kemmitt et al teaching them as alternatively useable species.

Accordingly, the examined combination of fungicidal active agents would have been obvious over the reference claims in view of Kemmitt et al.

Claims 1, 8, 12 and 16-17 are rejected on the ground of nonstatutory double patenting as being unpatentable over claim 1 of U.S. Patent No. **10,537,101** in view of Kemmitt et al (US 20150181870). Although the claims at issue are not identical, they

are not patentably distinct from each other because the examined claims would have been obvious over the reference claims in view of Kemmitt et al.

Specifically the examined claims are drawn to a fungicidal combination or composition comprising benzovindiflupyr (a succinate dehydrogenase inhibitor fungicide) mancozeb and at least another fungicide selected from ergosterol biosynthesis inhibitor fungicide and quinone outside inhibitor fungicide. The compositions comprise the said combination and an adjuvant. Claims are also drawn to a method of foliar application of the said combination/composition.

The reference claims are drawn to a method of reducing phytotoxicity of a fungicidal combination consisting of tebuconazole or prothioconazole and a strobilurin fungicide in soybean cultivars, the method comprising: (i) adding to a spray tank 1.0 kg/ha to 5.0 kg/ha of mancozeb and premixed tebuconazole or prothioconazole and strobilurin fungicide; (ii) triggering the spray tank agitator to produce a homogenized syrup; and (iii) applying the homogenized syrup to top leaves of a soybean crop, wherein adding mancozeb to the fungicidal combination consisting of tebuconazole or prothioconazole and a strobilurin fungicide decreases the phytotoxicity of the tebuconazole or prothioconazole to the soybean crop in comparison to a method lacking adding mancozeb.

The difference is that the reference claims do not list benzovindiflupyr as the succinate dehydrogenase inhibitor fungicide. However it would have been obvious to substitute the species in view of the art such as Kemmitt et al teaching them as alternatively useable species.

Accordingly, the examined combination of fungicidal active agents would have been obvious over the reference claims in view of Kemmitt et al.

Claims 1, 8, 12 and 16-17 are rejected on the ground of nonstatutory double patenting as being unpatentable over claim 1 of U.S. Patent No. **10,694,745** in view of Kemmitt et al (US 20150181870). Although the claims at issue are not identical, they are not patentably distinct from each other because the examined claims would have been obvious over the reference claims in view of Kemmitt et al.

Specifically the examined claims are drawn to a fungicidal combination or composition comprising benzovindiflupyr (a succinate dehydrogenase inhibitor fungicide) mancozeb and at least another fungicide selected from ergosterol biosynthesis inhibitor fungicide and quinone outside inhibitor fungicide. The compositions comprise the said combination and an adjuvant. Claims are also drawn to a method of foliar application of the said combination/composition.

The reference claims are drawn to a kit comprising a fungicidal combination consisting of (i) mancozeb, (ii) at least one quinone outside inhibitor, and (iii) at least one demethylation inhibitor.

The difference is that the reference claims do not list benzovindiflupyr as the succinate dehydrogenase inhibitor fungicide. However it would have been obvious to substitute the species in view of the art such as Kemmitt et al teaching them as alternatively useable species.

Accordingly, the examined combination of fungicidal active agents would have been obvious over the reference claims in view of Kemmitt et al.

Claims 1, 8, 12 and 16-17 are rejected on the ground of nonstatutory double patenting as being unpatentable over claim 1 of U.S. Patent No. **10,448,636** in view of Kemmitt et al (US 20150181870). Although the claims at issue are not identical, they are not patentably distinct from each other because the examined claims would have been obvious over the reference claims in view of Kemmitt et al.

Specifically the examined claims are drawn to a fungicidal combination or composition comprising benzovindiflupyr (a succinate dehydrogenase inhibitor fungicide) mancozeb and at least another fungicide selected from ergosterol biosynthesis inhibitor fungicide and quinone outside inhibitor fungicide. The compositions comprise the said combination and an adjuvant. Claims are also drawn to a method of foliar application of the said combination/composition.

The reference claims are drawn to an anti-resistance method for preventing or delaying the development of a fungal disease in a soybean or wheat crop, the method comprising: (i) adding to a spray tank, mancozeb (manganese ethylene bis(dithiocarbamate)+Zn) in an amount of 1.0 kg/ha to 5.0 kg/ha, and a prefabricated mixture of fungicides comprising: a quinone outside inhibitor fungicide (QoI), which is a strobilurin, and a demethylation inhibitor fungicide (DMI), which is a triazole; (ii) triggering spray tank agitator to form a homogenized syrup; and (iii) applying the homogenized syrup to the crop; wherein Phakopsora pachyrhizi is a causal agent of rust in the soybean crop, and Drechslera tritici-repentis is a causal agent of yellow leaf

spot in the wheat crop, and wherein the addition of the mancozeb to the quinone outside inhibitor and the demethylation inhibitor increases the resistance of the crop to the disease in comparison to the method lacking mancozeb.

The difference is that the reference claims do not list benzovindiflupyr as the succinate dehydrogenase inhibitor fungicide. However it would have been obvious to substitute the species in view of the art such as Kemmitt et al teaching them as alternatively useable species.

Accordingly, the examined combination of fungicidal active agents would have been obvious over the reference claims in view of Kemmitt et al.

Claims 1, 7-17 are provisionally rejected on the ground of nonstatutory double patenting as being unpatentable over claims 1-6 of copending Application No. **16/785,313** (US 20200170251) in view of Kemmitt et al (US 20150181870). Although the claims at issue are not identical, they are not patentably distinct from each other because the examined claims would have been obvious over the reference claims in view of Kemmitt et al.

Specifically the examined claims are drawn to a fungicidal combination or composition comprising benzovindiflupyr (a succinate dehydrogenase inhibitor fungicide) mancozeb and at least another fungicide selected from ergosterol biosynthesis inhibitor fungicide and quinone outside inhibitor fungicide. The compositions comprise the said combination and an adjuvant. Claims are also drawn to a method of foliar application of the said combination/composition.

The reference claims are drawn to a composition comprising a fungicidal combination and at least one agriculturally acceptable excipient, wherein the fungicidal combination consists of: (a) a multi-site contact fungicide selected from the group consisting of copper oxychloride, copper sulfate, copper hydroxide, and tribasic copper sulfate (Bordeaux mixture); (b) a first systemic fungicide that is a succinate dehydrogenase inhibitor; and (c) a second systemic fungicide selected from the group consisting of a quinone outside inhibitor, a quinone inside inhibitor, or a demethylation inhibitor.

The reference claims are drawn to a kit comprising a fungicidal combination consisting of (i) mancozeb, (ii) at least one quinone outside inhibitor, and (iii) at least one demethylation inhibitor.

The differences are that the reference claims do not list benzovindiflupyr as the succinate dehydrogenase inhibitor fungicide and do not teach mancozeb as the multi-site contact fungicide. However it would have been obvious to substitute the species in view of the art such as Kemmitt et al teaching them as alternatively useable species.

Accordingly, the examined combination of fungicidal active agents would have been obvious over the reference claims in view of Kemmitt et al.

This is a provisional nonstatutory double patenting rejection.

Response to Arguments

Applicant's arguments with respect to claim(s) 1-17 have been considered but are moot because the new ground of rejection does not rely on any reference applied in

the prior rejection of record for any teaching or matter specifically challenged in the argument.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. **Foor (US 20080113979).**

Foor teach **fungicidal mixtures**, compositions and methods for controlling plant diseases relating to combinations comprising (**a**) N-[2-(1,3-dimethyl-butyl)-3-thienyl]-1-methyl-3-(tri-fluoromethyl)-1H-**pyrazole-4 carboxamide** (**penthiopyrad**) (including all stereoisomers) or an agriculturally suitable salt thereof; and (**b**) at least one compound selected from the group consisting of compounds of Formula III or Formula IV which act at the bcl complex of the fungal mitochondrial respiratory electron transfer site; and optionally (**c**) at least one compound selected from the group of compounds acting at the demethylase enzyme of the sterol biosynthesis pathway and agriculturally suitable salts thereof (See abstract).

Also disclosed are **fungicidal compositions** comprising a fungicidally effective amount of **a mixture** of the said fungicides and at least one additional component selected from the group consisting of surfactants, solid diluents and liquid diluents, and a method for controlling a plant disease caused by a fungal plant pathogen comprising applying to the plant or portion thereof a fungicidally effective amount of the said mixture (e.g., as a composition) (See[0022]-[0023]).

Foor discloses an embodiment of a mixture wherein component (**b**) is **pyraclostrobin** or **trifloxystrobin** or **famoxadone** (See [0028]-[0030]).

The said combinations preferably also comprise a **fungicide** from the groups consisting of: alkylenebis(**dithiocarbamate**)s (d1) including compounds such as **mancozeb**, maneb, propineb and zineb. Carboxamides (d6) including compounds such as **boscalid**, carboxin, fenfuram, **furametpyr**, etc, (See [0057] and [0099]-[0101]), and triazoles including azaconazole, **cyproconazole**, ipconazole, **prothioconazole,** tebuconazole, **tetraconazole**, miconazole, etc, (See [0036]).

The said compositions may be in the form of granules, suspensions, emulsions, wettable powders, emulsifiable concentrates, etc, (See at least [0044]-[0048]).

The **weight ratios** of component (b) to component (a) in the said mixtures and compositions are typically from **100:1 to 1:100**, preferably from 25:1 to 1:25 (See [0042] [0043]). For embodiments where one or more of these various mixing partners are used, the weight ratio of these various mixing partners (in total) to the total amount of component (a) and component (b) is typically between 100:1 and 1:3000. Of note are weight ratios between 30:1 and 1:300 (for example ratios between 1:1 and 1:30). It will be evident that including these additional components may expand the spectrum of diseases controlled beyond the spectrum controlled by the combination of component (a), component (b), and the optional component (c) alone (See [0056]). Compositions wherein the overall weight ratio of components (b), (d) and, if present, (c) to component (a) is from **100:1 to 1:100** and the weight ratio of component (b) to component (a) is from 25:1 to 1:25 (See [0107]).

Claims 1 and 7-17 remain rejected.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mina Haghighatian whose telephone number is (571)272-0615. The examiner can normally be reached on M-F, 7-5 EST.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at http://www.uspto.gov/interviewpractice.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sue Liu can be reached on 571-272-5539. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see https://ppair-my.uspto.gov/pair/PrivatePair. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Mina Haghighatian/

Mina Haghighatian
Primary Examiner
Art Unit 1616

Notice of References Cited

Application/Control No.	Applicant(s)/Patent Under Reexamination
16/347,283	FABRI et al.
Examiner	**Art Unit**
Mina Haghighatian	1616

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-20150181870-A1	07-2015	Kemmitt; Greg	A01N37/42	514/229.2
	B					
	C					
	D					
	E					
	F					
	G					
	H					
	I					
	J					
	K					
	L					
	M					

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
	N	EP 2783569	12-2014	GERMANY	Grammenos et al	--------
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/347,283	FABRI et al.
	Examiner	Art Unit
	Mina Haghighatian	1616

CPC - Searched*		
Symbol	Date	Examiner

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/347,283	FABRI et al.
	Examiner	Art Unit
	Mina Haghighatian	1616

Search Notes		
Search Notes	**Date**	**Examiner**
WEST- Text and Inventor names searched	08/14/2020	mh
NPL-Text and Inventor names searched	08/14/2020	mh
Google patent search	08/14/2020	mh
Google scholar search	08/14/2020	mh
Global dossier	08/14/2020	mh
Espacnet search	08/14/2020	mh
Foreign patent finder	08/14/2020	mh
PALM- Inventor names search	08/14/2020	mh
IDS considered	08/14/2020	mh
WESTsearch update	08/17/2020	mh
WESTsearch update	08/17/2020	mh
WEST- Text and Inventor names searched	01/14/2021	MH
NPL-Text and Inventor names searched	01/14/2021	MH
WEST search updated	01/14/2021	MH
WEST- Text, inventor names searched	01/14/2021	MH
WEST- Text, classification searched	01/14/2021	MH
Google scholar search	01/14/2021	MH
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WEST-copending patents and applications searched	01/15/2021	MH

Interference Search			
US Class/CPC Symbol	**US Subclass/CPC Group**	**Date**	**Examiner**

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Terms	Documents
L10 mancozeb	10

Database:
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Search Type: (•) Prior Art ( ) Interference

Search: L11 Refine Search

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Search History

DATE: Thursday, January 14, 2021 Purge Queries Printable Copy Create Case

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Date	L2	A01N47/14	1864	L2	L2	L2
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Date	L4	L3 A01N43/16	25	L4	L4	L4
Date	L5	L3 A01N43/16 A01N43/40	20	L5	L5	L5

Date	L6	L3 A01N43/16 A01N45/02	9	L6	L6	L6
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	L8	US-20140154336-A1.did.	1	L8	L8	L8
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Date	L9	Fabri.inv.	884	L9	L9	L9
Date	L10	L9 Shroff.inv.	25	L10	L10	L10
Date	L11	L10 mancozeb	10	L11	L11	L11

END OF SEARCH HISTORY

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L5 benzovindiflupyr same mancozeb same ratio	60

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Search Type: (•) Prior Art ( ) Interference

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Date	L2	benzovindiflupyr	1424	L2	L2	L2
Date	L3	L2 same mancozeb	679	L3	L3	L3
Date	L4	L3 same (cryptoconazole or tebuconazole or picoxystrobin or kresoxim)	663	L4	L4	L4
Date	L5	L4 same (prothioconazole or azoxystrobin)	660	L5	L5	L5

Date	L6	L5 benzovindiflupyr near20 ratio	48	L6	L6	L6
Date	L7	L5 benzovindiflupyr same mancozeb same ratio	60	L7	L7	L7

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Compositions comprising a triazole compound

Grammenos, Wassilios; Craig, Ian Robert; Boudet, Nadege; Müller, Bernd; Lauterwasser, Erica May Wilson; Lohmann, Jan Klaas; Haden, Egon; Escribano Cuesta, Ana; Grote, Thomas (inventors). BASF SE (Assignee). **EP 2783569 A1**. (Published 01 Oct 2014).

Highlighting: Off | Single | Multi

Patent Citations Family (1 members)

Bibliographic information | Claims | Legal status | Specification

Abstract (summary)

The present invention relates to compositions comprising as component I 2-[2-chloro-4-(4-chlorophenoxy)phenyl]-1,3-bis(1,2,4-triazol-1-yl)propan-2-ol and a component II selected from groups A) to O).

Indexing (details) Cite

Assignee	BASF SE (100.005518) 67056 Ludwigshafen, DE
Inventor	Grammenos, Wassilios Alexander-Fleming-Strasse 13, 67071 Ludwigshafen, DE Craig, Ian Robert Carl-Bosch-Straße 70, 67063 Ludwigshafen, DE Boudet, Nadege Auf der Au 12, 69502 Hemsbach, DE Müller, Bernd Stockingerstrasse 7, 67227 Frankenthal, DE Lauterwasser, Erica May Wilson Bürklin-Wolf-Strasse 39, 67157 Wachenheim, DE Lohmann, Jan Klaas Mühlorstrasse 2a, 67245 Lambsheim, DE Haden, Egon Maulbronner Hof 24, 67346 Speyer, DE Escribano Cuesta, Ana Spelzenstraße 16, 68167 Mannheim, DE Grote, Thomas Im Höhnhausen 18, 67157 Wachenheim, DE
Alternate title	Zusammensetzungen mit einer Triazol-Verbindung (German) Compositions comprenant un composé de triazole (French)
Publication number	EP 2783569 A1 (01 October 2014)
Application number	EP 2014160444 (18 March 2014)
Priority number	EP 2013161626 (28 March 2013)
CPC classification	A01N 43/653 (main) More details
IPC classification	Version 8: A01N 43/16 (main); A01N 43/653; A01P 3/00 More details
Publication language	English
Application language	English
Examiner	Lorenzo Varela, M (examiner) USPTO Art Unit: Munich
Designated states	EPO: AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR Extended state: BA ME
Document features	27 literature citations; 9 cited patents; 4 citing patents 12 claims; 8 legal status entries
Word count	25857
Source attribution	European Patents Fulltext, © Publisher specific

Accession number	EP2783569A1
Document URL	https://dialog.proquest.com/professional/docview/1566752930?accountid=131444
First available	2014-10-02
Updates	2014-10-02 2014-10-15 2014-10-16 2014-11-14 2014-12-12 2015-06-26 2015-08-13 2015-11-26 2016-01-15 2016-02-19 2016-03-03 2016-09-30 2016-11-11 2017-11-14 2018-08-17 2018-08-24 2019-05-23 2019-08-22 2019-10-03 2019-11-23
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Date	L4	10448636	1	L4	L4	L4

END OF SEARCH HISTORY

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Search: L3 [Refine Search]

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Search History

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Date	L2	16347283	1	L2	L2	L2
Date	L3	20150181870	1	L3	L3	L3

END OF SEARCH HISTORY

PTO/SB/06 (09-11)
Approved for use through 1/31/2014. OMB 0651-0032
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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 16/347,283	Filing Date 05/03/2019	☐ To be Mailed

ENTITY: ☑ LARGE ☐ SMALL ☐ MICRO

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA		RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A		N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A		N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*		x $100 =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*		x $460 =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).				
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))					
* If the difference in column 1 is less than zero, enter "0" in column 2.				TOTAL	

APPLICATION AS AMENDED - PART II

		(Column 1)		(Column 2)	(Column 3)			
AMENDMENT	11/11/2020	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
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	Independent (37 CFR 1.16(h))	* 3	Minus	*** 3	= 0		x $480 =	0
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	0

		(Column 1)		(Column 2)	(Column 3)			
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=		x $0 =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=		x $0 =	
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.	SLIE
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".	/ERIC A DANTZLER/
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The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.	

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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Electronic Acknowledgement Receipt

EFS ID:	41092842
Application Number:	16347283
International Application Number:	
Confirmation Number:	4341
Title of Invention:	FUNGICIDAL COMBINATIONS
First Named Inventor/Applicant Name:	Carlos Eduardo FABRI
Customer Number:	23413
Filer:	Karen A. LeCuyer/Nicholas Reginio
Filer Authorized By:	Karen A. LeCuyer
Attorney Docket Number:	UP20010US (FPAA06284)
Receipt Date:	11-NOV-2020
Filing Date:	03-MAY-2019
Time Stamp:	11:26:47
Application Type:	U.S. National Stage under 35 USC 371

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Amendment/Req. Reconsideration-After Non-Final Reject	8ND2636.pdf	112100 bef0a64e21ceae2cba0d562f81ab251e21f0368e	no	10

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New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.
National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.
New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Named Inventor:	Carlos Eduardo Fabri	) Group Art Unit: 1616
Serial No.:	16/347,283	) Examiner: Mina Haghighatian
Filed:	05/03/2019	) Confirmation No.: 4341
For:	FUNGICIDAL COMBINATIONS	)

VIA ELECTRONIC FILING
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

AMENDMENT

Sir:

This Amendment is submitted in response to the Office Action dated August 21, 2020.

Please amend the Application as follows:

IN THE CLAIMS

1. (Currently Amended) A fungicidal combination comprising ~~benzovindiflupyrat least one succinate dehydrogenase inhibitor fungicide~~, mancozeb ~~at least one dithiocarbamate fungicide~~, and at least another fungicide selected from an ergosterol biosynthesis inhibitor fungicide, and a quinone outside inhibitor fungicide.

2. (Cancelled)

3. (Cancelled)

4. (Cancelled)

5. (Cancelled)

6. (Cancelled)

7. (Currently Amended) The combination as claimed in claim 16, wherein the ergosterol biosynthesis inhibitor is selected from azaconazole, bitertanol, bromuconazole, cyproconazole, difenoconazole, diniconazole, epoxiconazole, etaconazole, fenbuconazole, fluquinconazole, flusilazole, flutriafol, hexaconazole, imibenconazole, Ipconazole, metconazole, myclobutanil, penconazole, pPropiconazole, simeconazole, tebuconazole, tetraconazole, triadimefon, triadimenol, triticonazole, prothioconazole, imazalil, oxpoconazole, pefurazoate, prochloraz, triflumizole, fenarimol, nuarimol, pyrifenox , pyrisoxazole, triforine, and mixtures thereof.

8. (Currently Amended) The combination as claimed in claim 16, wherein the qQuinone outside (Qo) inhibitor fungicide is selected from azoxystrobin, coumoxystrobin, enoxastrobin, flufenoxystrobin, picoxystrobin, pyraoxystrobin, mandestrobin, pyraclostrobin, pyrametostrobin, triclopyricarb, kresoxim-methyl, dimoxystrobin, fenaminostrobin, metominostrobin, trifloxystrobin, famoxadone, fluoxastrobin, fenamidone, pyribencarb, and mixtures thereof.

9. (Currently Amended) A fungicidal combination comprising ~~at least one succinate dehydrogenase inhibitor fungicide~~benzovindiflupyr, ~~at least one dithiocarbamate fungicide~~mancozeb, and at least two ~~additional~~additional fungicides selected from an ergosterol biosynthesis inhibitor fungicide, and a quinone outside inhibitor fungicide.

10. (Currently Amended) The combination as claimed in claim 1, comprising:

~~(a) mancozeb as the at least one dithiocarbamate fungicide;~~

~~(b) isopyrazam, benzovindiflupyr, penthiopyrad, boscalid, fluindapyr, bixafen, fluxapyroxad, furametpyr, penflufen, or sedaxane as the succinate dehydrogenase inhibitor; and~~

~~(c)~~ cyproconazole, difenoconazole, epoxiconazole, hexaconazole, hexaconazole, tebuconazole, tetraconazole, prothioconazole, azoxystrobin, picoxystrobin, pyraclostrobin, kresoxim-methyl, trifloxystrobin, or combinations thereof as the at least another fungicide.

11. (Currently Amended) The combination as claimed in claim 1 comprising:

~~(a) mancozeb as the at least one dithiocarbamate fungicide;~~

~~(b) penzovindiflupyr, isopyrazam, or penthipyrad as the succinate dehydrogenase inhibitor; and~~

~~(c)~~ prothioconazole and/or azoxystrobin as the at least another fungicide.

12. (Currently Amended) A composition comprising:

(a) ~~at least one succinate dehydrogenase inhibitor fungicide~~benzovindiflupyr;

(b) ~~at least one dithiocarbamate fungicide~~mancozeb;

(c) at least one ergostrol biosynthesis inhibitor and/or at least one quinone outside inhibitor; and

(d) at least one agrochemically acceptable excipient.

13. (Currently Amended) The composition as claimed in claim 12, wherein the composition is formulated into wettable powders, granules, dusts, soluble (liquid) concentrates, suspension concentrates, oil in water emulsion, water in oil emulsion, emulsifiable concentrates, capsule suspensions, a combination of a suspension concentrate (SC) and a capsule suspension (CS)ZC formulations, or oil dispersions.

14. (Currently Amended) The combination as claimed in claim 1, wherein the benzovindiflupyr and mancozeb constituent fungicides of the combination are admixed in ratio of (1-80): (1-80): (1-80): (1:80).

15. (Currently Amended) The composition combination as claimed in claim 12, wherein the total amount of benzovinidiflupyrsuccinate dehydrogenase inhibitor in the composition is in the range of 0.1 to 99% by weight, the total amount of mancozebdithiocarbamate fungicide in the composition is in the range of 0.1 to 99% by weight; the total amount of ergostrol biosynthesis inhibitor in the composition is in the range of 0.1 to 99% by weight; and the total amount of quinone outside inhibitor in the composition is in the range of 0.1 to 99% by weight.

16. (Currently Amended) A method of foliar application or plant propagation, comprising applying the combination composition of claim 1 to the foliage of a plant.

17. (Currently Amended) A method of controlling fungal diseases in plants comprising, applying to the locus of the plant a combination comprising:

(a) benzovindiflupyrat least one succinate dehydrogenase inhibitor fungicide;

(b) at least one quinone outside inhibitor and/or at least one ergostrol biosynthesis inhibitor; and

(c) mancozebat least one dithiocarbamate fungicide.

REMARKS

Claims 1-17 are pending in the present Application. Claims 2-6 have been cancelled, Claims 1 and 7-17 have been amended, leaving Claims 1 and 7-17 for consideration upon entry of the present Amendment.

Support for the amendments to claims 1, 9, 12, and 17can be found in claims 3, 5 and 6 as filed.

Claims 7 and 8 have been amended to change their dependency.

Claims 10, 11, 14, and 15 have been amended for consistency with amended claim 1.

Support for the amendment to claim 13 can be found

Claim 16 has been amended to correct a typographical error.

Claim 17 has been amended for clarity.

Reconsideration and allowance of the claims are respectfully requested in view of the above amendments and the following remarks.

Claim Objections

Some claims contain chemical names or chemical groupings/classes that have been capitalized. The said claims include at least claims 1, 7-8.

In claim 9, the term "additional" has a spelling error.

In claim 11 the compound "penthiopyrad" has a spelling error.

The claim amendments submitted herewith correct the errors pointed out by the Examiner.

Reconsideration and withdrawal of the claim objections are requested.

Claim Rejections Under 35 U.S.C. § 112(a) or 35 U.S.C. § 112(pre-AIA), First Paragraph

Claim 16 stands rejected under 35 U.S.C. § 112(a) or 35 U.S.C. § 112(pre-AIA), first paragraph, as allegedly containing subject matter which was not described in the Specification in such a way as to reasonably convey to one skilled in relevant art that the inventors, at the time the application was filed, had possession of the claimed invention.

While Applicant does not necessarily agree with the Examiner, plant propagation has been removed from claim 16 to advance prosecution.

Claim Rejections Under 35 U.S.C. § 112(b) or 35 U.S.C. § 112(pre-AIA), Second Paragraph

Claims 11 and 13-17 stand rejected under 35 U.S.C. § 112(b) or 35 U.S.C. § 112 (pre-AIA), second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In particular, Claim 11 is indefinite for reciting the first compound of group (b) as penzovidiflupyr, which is incorrect and should be benzovidiflupyr. The amendments to claim 11 obviate the rejection.

Claim 13 is indefinite for reciting ZC formulations. It is not clear what said formulations are. As evidenced by https://www.cipac.org/index.php/methods-publications/further-information/formulation-codes, ZC formulations are a mixture of SC and CS.

Claim 14 is indefinite for reciting combination of claim 1, wherein the constituent fungicides are admixed in a ratio of (1-80): (1-80): (1-80): (1:80). This ratio is indefinite because 1- claim 1 recites 3 constituents and 2- it is not clear what 1:80 is referring to. The amendments to claim 14 obviate the rejection.

Claim 15 recites the limitation “the combination” in claim 12. There is insufficient antecedent basis for this limitation in the claim. Claim 12 is drawn to a composition. The amendments to claim 15 obviate the rejection.

Claim 16 recites the limitation "the composition" in claim 1. There is insufficient antecedent basis for this limitation in the claim. Claim 1 is drawn to a combination. The amendments to claim 11 obviate the rejection.

Claim 17 is indefinite because it is drawn to a method of controlling fungal diseases. This preamble is incomplete as it fails to state where the fungal diseases are. It should state a method of controlling fungal diseases in plants comprising….

Reconsideration and withdrawal of the rejections are requested.

Claim Rejections Under 35 U.S.C. § 102(a)(1)

Claims 1-17 stand rejected under 35 U.S.C. § 102(a)(1), as allegedly anticipated by World Intellectual Property Organization Patent Publication No. 2015079334 using its U.S.

version, U.S. Patent Publication No. 20160360751 to De Oliveira et al. (hereinafter "Oliveira").

To anticipate a claim, a reference must disclose each and every element of the claim. *Lewmar Marine v. Barient Inc.*, 3 U.S.P.Q.2d 1766 (Fed. Cir. 1987).

Applicant submits that the claims have been amended to recite combinations and compositions comprising benzovindiflupyr, mancozeb, and another fungicide selected from an ergosterol biosynthesis inhibitor fungicide and a quinone outside inhibitor fungicide.

The composition of De Oliveira includes at least one multi-site contact fungicide and at least one systemic fungicide. De Oliveira discloses mancozeb as one of the multi-site fungicides. However, there is no teaching in De Oliveira of a combination comprising benzovindiflupyr, mancozeb, and at least another fungicide selected from an ergosterol biosynthesis inhibitor fungicide, and quinone outside inhibitor fungicide. Applicant submits that De Oliveira does not even disclose benzovindiflupyr as one of the systemic fungicides.

Reconsideration and withdrawal of the rejection are requested.

Claims 1-5, 9, 11, 14 and 16 stand rejected under 35 U.S.C. § 102(a)(1), as allegedly anticipated by U.S. Patent Publication No. 20080113979 to Foor (hereinafter "Foor").

Foor teaches a combination comprising penthiopyrad (component (a)), component (b) and optionally component (c). Component (b) is asserted to be selected from pyraclostrobin, trifoxystrobin or amoxadone. Optional component (c) can be mancozeb. It is respectfully submitted that penthiopyrad is an essential component of the composition as taught in Foor. There is no suggestion in Foor that penthiopyrad can be replaced or substituted with any other fungicide such as benzovindiflupyr and then combined with mancozeb and other fungicides as claimed in the present claims. Foor does not disclose benzovindiflupyr.

Reconsideration and withdrawal of the rejection are requested.

Claims 1-17 stand rejected under 35 U.S.C. § 102(a)(1), as allegedly anticipated by U.S. Patent Publication No. 20090131462 to Gewehr et al. (hereinafter "Gewehr").

Gewehr is asserted to teach compositions comprising penthiopyrad and another fungicide selected from a large number of fungicides including mancozeb. It is respectfully

submitted that penthiopyrad is an essential component of the composition as taught in Gewehr. However, the compositions of the present claims do not include penthiopyrad. There is no teaching in Gewehr that penthiopyrad can be replaced or substituted with any other fungicide of the same class that is succinate dehydrogenase inhibitor fungicide and specifically benzovindiflupyr. Gewehr does not disclose benzovindiflupyr.

Reconsideration and withdrawal of the rejection are requested.

Claim Rejections Under 35 U.S.C. § 103

Claims 6-8, 10, 12-31, 15 and 17 stand rejected under 35 U.S.C. § 103, as allegedly unpatentable over Foor.

For an obviousness rejection to be proper, the Examiner must meet the burden of establishing that all elements of the invention are disclosed in the prior art; that the prior art relied upon, or knowledge generally available in the art at the time of the invention, must provide some suggestion or incentive that would have motivated the skilled artisan to modify a reference or combined references. *In re Fine*, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988). "A patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art." *KSR Int'l Co. v. Teleflex Inc.,* 127 S.Ct. 1727, 1741 (2007). To find obviousness, the Examiner must "identify a reason that would have prompted a person of ordinary skill in the art in the relevant field to combine the elements in the way the claimed new invention does." *Id.*

Foor teaches a combination comprising penthiopyrad (component (a)), component (b) and optionally component (c). Component (b) is asserted to be selected from pyraclostrobin, trifoxystrobin or amoxadone. Optional component (c) can be mancozeb. It is respectfully submitted that penthiopyrad is an essential component of the composition as taught in Foor. There is no suggestion in Foor that penthiopyrad can be replaced or substituted with any other fungicide such as benzovindiflupyr and then combined with mancozeb and other fungicides as claimed in the present claims. Foor does not disclose benzovindiflupyr.

As shown in the present application in Tables 1 and 2, it is clear that mancozeb improves efficacy of the combination comprising benzovindiflupyr and quinone outside inhibitor fungicides and ergosterol biosynthesis inhibitors.

Reconsideration and withdrawal of this rejection are respectfully requested.

Double Patenting

Claims 1-17 stand provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-7 of U.S. Patent No. 10,694,744 to Oliveira et al. (hereinafter "Oliveira '744")

Claims 1-17 stand provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-12 of U.S. Patent No. 10,362,782 to Oliveira et al. (hereinafter "Oliveira '782")

Claims 1-3, 6-8, 12 and 16-17 stand provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 10,537,101 to Oliveira et al. (hereinafter "Oliveira '101") in view of Gewehr.

Claims 1-3, 6-8, 12 and 16-17 stand provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 10,694,745 to Oliveira et al. (hereinafter "Oliveira '745") in view of Gewehr.

Claims 1-3, 6-8, 12 and 16-17 stand provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 10,448,636 to Oliveira et al. (hereinafter "Oliveira '636") in view of Gewehr.

Applicants thank the Examiner for pointing out the potential obviousness-type double patenting issue between the claims of the present application and those of Oliveira et al. In view of the possibility that claims in the present application will be further amended before allowance, Applicants will defer responding to this provisional rejection until claims in the present application are otherwise allowable, and it is determined whether this provisional rejection becomes an actual rejection.

Claims 1-17 stand provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-6 of copending

Application Serial No. 16/785,313 (U.S. Patent Publication No. 20200170251 to Oliveira et al., hereinafter "Oliveira Pub '251") in view of Gewehr.

As neither case has been issued or allowed, the claims are not final in both cases. It therefore not possible to make any determination as to double patenting or obviousness at this time. Hence, it is requested that this rejection be held in abeyance at least until the present claims are allowed and the '251 case has issued. MPEP § 804.01.I(B)(1).

It is believed that the foregoing amendments and remarks fully comply with the Office Action and that the claims herein should now be allowable to Applicants. Accordingly, reconsideration and allowance are requested.

If there are any additional charges with respect to this Amendment or otherwise, including for any necessary extensions of time under 37 C.F.R. 1.136(a) or 1.136(b), for which the Applicants hereby respectfully petition, please charge them to Deposit Account No. 06-1130.

Respectfully submitted,
CANTOR COLBURN LLP

/Karen A. LeCuyer/

Date: November 11, 2020

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
16/347,283	05/03/2019	Carlos Eduardo FABRI	UP20010US (FPAA06284)	4341

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EXAMINER	
HAGHIGHATIAN, MINA	

ART UNIT	PAPER NUMBER
1616	

NOTIFICATION DATE	DELIVERY MODE
08/21/2020	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

usptopatentmail@cantorcolburn.com

PTOL-90A (Rev. 04/07)

Office Action Summary

Application No.	Applicant(s)		
16/347,283	FABRI et al.		
Examiner	**Art Unit**	**AIA (FITF) Status**	
Mina Haghighatian	1616	Yes	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☑ Responsive to communication(s) filed on 05/03/2019.

☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on ____.

2a)☐ This action is **FINAL.** 2b) ☑ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on ____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

5) ☑ Claim(s) 1-17 is/are pending in the application.

5a) Of the above claim(s) ____ is/are withdrawn from consideration.

6) ☐ Claim(s) ____ is/are allowed.

7) ☑ Claim(s) 1-17 is/are rejected.

8) ☑ Claim(s) 1 and 7-8 is/are objected to.

9) ☐ Claim(s) ____ are subject to restriction and/or election requirement

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to **PPHfeedback@uspto.gov.**

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☐ The drawing(s) filed on ____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

12)☑ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a)☑ All b)☐ Some** c)☐ None of the:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. ____.

3.☑ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

** See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☑ Notice of References Cited (PTO-892)

2) ☑ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date _____.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date ____.

4) ☐ Other: _____.

DETAILED ACTION

Notice of Pre-AIA or AIA Status

The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the **AIA**.

Claims **1-17** have been presented for examination on the merits.

Claim Objections

Some claims contain chemical names or chemical groupings/classes that have been capitalized. The said claims include at least claims 1, 7-8.

In claim 9, the term “additional” has a spelling error.

In claim 11 the compound “penthiopyrad” has a spelling error.

Corrections are required.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112(a):

> (a) IN GENERAL.—The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor or joint inventor of carrying out the invention.

The following is a quotation of the first paragraph of pre-AIA 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim **16** is rejected under 35 U.S.C. 112(a) or 35 U.S.C. 112 (pre-AIA), first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor or a joint inventor, or for pre-AIA the inventor(s), at the time the application was filed, had possession of the claimed invention. Claim 16 is drawn to a method of foliar application or plant propagation, comprising applying the (composition) combination of claim 1 to a plant.

However there is no support to the claimed method of plant propagation by applying the combination to a plant. As disclosed in the specification and known in the art, plant propagation occurs from swing plant parts such as seeds, seedlings, tubers in the soil. There is no evidence in the art or any support provided by the Specification that applying a combination of fungicides will result in plant propagation. Also it is not clear how the said method of plant propagation happens when the combination is applied to the plant. That is if there is a plant, the propagation has already occurred.

The following is a quotation of 35 U.S.C. 112(b):
(b) CONCLUSION.—The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the inventor or a joint inventor regards as the invention.

The following is a quotation of 35 U.S.C. 112 (pre-AIA), second paragraph:
The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims **11, 13-17** are rejected under 35 U.S.C. 112(b) or 35 U.S.C. 112 (pre-AIA), second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the inventor or a joint inventor, or for pre-AIA the applicant regards as the invention.

Claim **11** is indefinite for reciting the first compound of group (b) as penzovidiflupyr, which is incorrect and should be benzovidiflupyr.

Claim **13** is indefinite for reciting ZC formulations. It is not clear what said formulations are. Abbreviations known in the art should be spelled out at least in the first recitation in the claims.

Claim **14** is indefinite for reciting combination of claim 1, wherein the constituent fungicides are admixed in a ratio of (1-80): (1-80): (1-80): (1:80). This ratio is indefinite because 1- claim 1 recites 3 constituents and 2- it is not clear what 1:80 is referring to.

Claim **15** recites the limitation "the combination" in claim 12. There is insufficient antecedent basis for this limitation in the claim. Claim 12 is drawn to a composition.

Claim **16** recites the limitation "the composition" in claim 1. There is insufficient antecedent basis for this limitation in the claim. Claim 1 is drawn to a combination.

Claim **17** is indefinite because it is drawn to a method of controlling fungal diseases. This preamble is incomplete as it fails to state where the fungal diseases are. It should state a method of controlling fungal diseases in plants comprising….

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a)(1) the claimed invention was patented, described in a printed publication, or in public use, on sale or otherwise available to the public before the effective filing date of the claimed invention.

Claims 1-17 are rejected under 35 U.S.C. 102(a)(1) as being anticipated by De Oliveira et al (WO 2015079334, using its US version, **US 20160360751).**

De Oliveira et al teach an improved method of treating soybean rust infection in a host leguminous plant, wherein the improvement comprises treating the plant at the locus of the infection with **a dithiocarbamate fungicide**, and at least another fungicide selected from a demethylation inhibitor, **quinone outside inhibitor**, **succinate dehydrogenase inhibitor**, quinone inside inhibitor or combinations thereof, and a fungicidal combination (See [0033]-[0035], [0037]).

The said **dithiocarbamate fungicide** is selected from amobem, ziram, dazomet, milneb, **mancozeb**, maneb, polycarbamate, propineb, zineb, etc (See [0039[-[0042]).

Disclosed is a method for treating soybean rust in a host leguminous plant, wherein the method comprises treating the plant at the locus of the infection with **mancozeb**; and **at least one systemic fungicide**, including the **quinone outside inhibitor,** selected from an imidazolinone fungicide, an oxazolidinedione fungicide or a strobilurin fungicide, such as **azoxystrobin**, pyraoxystrobin, kresoxim-methyl, **pyraclostrobin** and trifloxystrobin (See [0044], [0048]-[0049], [0053]).

The systemic fungicide may be a demethylation inhibitor (DMI inhibitor), selected from the group consisting of climbazole, clotrimazole, bromuconazole, **cyproconazole,** difenoconazole, epoxiconazole, propiconazole, **prothioconazole**, tebuconazole, tetraconazole, etc (See [0056]).

The systemic fungicide may be a **succinate dehydrogenase inhibitor** fungicide (SDHI). Preferably, the succinate dehydrogenase inhibitor is selected from the group

consisting of benodanil, fluopyram, **bixafen**, fluxapyroxad, furametpyr, **isopyrazam**, penflufen, **penthiopyrad**, sedaxane and **boscalid** (See [0075]).

De Oliviera et al disclose that it has been found that a combination of **a multi-site** contact fungicide, preferably a dithiocarbamate fungicide, along with a systemic fungicide selected from at least one Qo inhibitor (Quinone outside inhibitors), at least one Qi (quinone inside) inhibitor, at least one DM inhibitor (demethylation inhibitor) or at least one SDH Inhibitor (succinate dehydrogenase inhibitors) leads to an unexpected and surprisingly good control of Soybean Rust as compared to other fungicides (see [0077]).

In a preferred embodiment, **the first and second systemic fungicides** are selected from **different classes** of systemic fungicides. For example: (i) when the first systemic fungicide is a demethylation inhibitor, the second systemic fungicide is selected from a quinone outside inhibitor, a quinone inside inhibitor and succinate dehydrogenase inhibitor, etc, (See [0098]-[0102]).

The said fungicides or the combinations thereof are pre-formulated and may be in the form of water dispersible **granules** (WDG), wettable powders, **suspension** concentrates, emulsifiable concentrate, suspoemulsions, capsule suspensions etc. Adjuvants and ancillary ingredients may be used to formulate such pre formulated **compositions** and may employ wetters, adhesives, dispersants or surfactants and, if appropriate solvent or oil and other agriculturally acceptable additives. The said composition may comprise any of the said fungicidal combinations along with agriculturally acceptable excipients (See [0125]-[0127]).

Claims 1-5, 9, 11, 14 and 16 are rejected under 35 U.S.C. 102(a)(1) as being anticipated by Foor (US 20080113979).

Foor teach **fungicidal mixtures**, compositions and methods for controlling plant diseases relating to combinations comprising (**a**) N-[2-(1,3-dimethyl-butyl)-3-thienyl]-1-methyl-3-(tri-fluoromethyl)-1H-**pyrazole-4 carboxamide** (**penthiopyrad**) (including all stereoisomers) or an agriculturally suitable salt thereof; and (**b**) at least one compound selected from the group consisting of compounds of Formula III or Formula IV which act at the bcl complex of the fungal mitochondrial respiratory electron transfer site; and optionally (**c**) at least one compound selected from the group of compounds acting at the demethylase enzyme of the sterol biosynthesis pathway and agriculturally suitable salts thereof (See abstract).

Also disclosed are **fungicidal compositions** comprising a fungicidally effective amount of **a mixture** of the said fungicides and at least one additional component selected from the group consisting of surfactants, solid diluents and liquid diluents, and a method for controlling a plant disease caused by a fungal plant pathogen comprising applying to the plant or portion thereof a fungicidally effective amount of the said mixture (e.g., as a composition) (See[0022]-[0023]).

Foor discloses an embodiment of a mixture wherein component (**b**) is **pyraclostrobin** or **trifloxystrobin** or **famoxadone** (See [0028]-[0030]).

The said combinations preferably also comprise a **fungicide** from the groups consisting of: alkylenebis(**dithiocarbamate**)s (d1) including compounds such as **mancozeb**, maneb, propineb and zineb. Carboxamides (d6) including compounds such

as **boscalid**, carboxin, fenfuram, **furametpyr**, etc, (See [0057] and [0099]-[0101]), and triazoles including azaconazole, **cyproconazole**, ipconazole, **prothioconazole,** tebuconazole, **tetraconazole**, miconazole, etc, (See [0036]).

The said compositions may be in the form of granules, suspensions, emulsions, wettable powders, emulsifiable concentrates, etc, (See at least [0044]-[0048]).

The **weight ratios** of component (b) to component (a) in the said mixtures and compositions are typically from **100:1 to 1:100**, preferably from 25:1 to 1:25 (See [0042] [0043]). For embodiments where one or more of these various mixing partners are used, the weight ratio of these various mixing partners (in total) to the total amount of component (a) and component (b) is typically between 100:1 and 1:3000. Of note are weight ratios between 30:1 and 1:300 (for example ratios between 1:1 and 1:30). It will be evident that including these additional components may expand the spectrum of diseases controlled beyond the spectrum controlled by the combination of component (a), component (b), and the optional component (c) alone (See [0056]). Compositions wherein the overall weight ratio of components (b), (d) and, if present, (c) to component (a) is from **100:1 to 1:100** and the weight ratio of component (b) to component (a) is from 25:1 to 1:25 (See [0107]).

Claims 1-17 are rejected under 35 U.S.C. 102(a)(1) as being anticipated by Gewehr et al (US 20090131462).

Gewehr et al teach a fungicidally active agent containing at least one other defined fungicide in addition to the fungicide N-[2-(1,3-dimethylbutyl)-3-thienyl]-1-

methyl-3-(trifluormethyl)-1H-pyrazo- l-4-carboxamide (**penthiopyrad**), and a method for controlling pathogenic fungi using one such agent, and compositions comprising the said agent for controlling pathogenic fungi. Disclosed are compositions comprising the compound A and at least one fungicide B, to act on the fungi, their habitat or the materials, plants, seed, soils, areas or spaces to be protected against fungal attack. The application of active compounds A and B can be either simultaneously, that is jointly or separately, or in succession (See abstract, [0021]-[0022] and [0136]).

Disclosed are a fungicidally active **composition**, comprising: **penthiopyrad** and at least one further fungicide B selected from azole fungicides selected from the group consisting of **prothioconazole**, triticonazole, tetraconazole, **cyproconazole,** difenoconazole, dinitroconazole, epoxiconazole, fenbuconazole, fluquinconazole, flusilazole, metconazole,simeconazole, oxpoconazole, etc; or dithiocarbamate fungicides selected from the group consisting of maneb, **mancozeb,** metam, propineb, polycarbamate, thiram, ziram, zineb, etc; strobilurins, such as **azoxystrobin**, dimoxystrobin, enestroburin, fluoxastrobin, **kresoxim-methyl**, metominostrobin, orysastrobin, picoxystrobin, pyraclostrobin or trifloxystrobin (See [0010]-[0011], [0081], [0083] and [0090]).

It is disclosed that preferably, the weight ratio of component A to component B is from 200:1 to 1:200, more preferably from 100:1 to 1:100, e.g. from 2:1 to 1: 100, etc. In a special embodiment, the fungicide B is selected from fungicides of groups B.1 to B.5 and mixtures thereof. In a ternary composition, the fungicidally active compounds, comprise, in addition to component A, two different fungicides from group B. Consequently, higher compositions comprise three or more fungicides from group B

(see [0058]-[0062]). In ternary compositions the ratio of the weight of compound A to the total weight of the two fungicides from group B is from 100:1 to 1:100, particularly preferably from 50:1 to 1:50 and especially from 10:1 to 1:10 (See [0064]).

Gewehr et al also disclose that aqueous application forms can be prepared, for example, from **emulsion concentrates**, suspensions, pastes, oil dispersions, wettable powders or water-dispersible granules by addition of water. The concentrations of fungicides A and B in the ready-to-use preparations can be varied within relatively wide ranges. In general, they are between 0.0001 and 10%, preferably between **0.01 and 1%** (% by weight total content of active compound, based on the total weight of the ready-to-use preparation). The fungicides A and B may also be used successfully in the ultra-low-volume process (ULV), it being possible to employ formulations comprising more than **95%** by weight of active compound, or even to apply the active compounds without additives (See [0070]-[0072]).

The compositions are preferably **applied** to the plants by spraying the **leaves**, for example, by customary spray techniques using spray liquor amounts of from about 100 to 1000 l/ha (for example from 300 to 400 l/ha) using the carrier water (See [0187]).

Gewehr et al disclose that “Surprisingly, the compositions according to the invention comprising the compound of the formula A and at least one fungicide from component B have better fungicidal activity against harmful fungi than would have been expected based on the fungicidal activity of the individual compounds, i.e. the fungicidal activity is increased in a superadditive manner” (See [0190]).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103 which forms the basis for all obviousness rejections set forth in this Office action:

> A patent for a claimed invention may not be obtained, notwithstanding that the claimed invention is not identically disclosed as set forth in section 102, if the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to which the claimed invention pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103 are summarized as follows:

1. Determining the scope and contents of the prior art.

2. Ascertaining the differences between the prior art and the claims at issue.

3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 6-8, 10, 12-13, 15 and 17 are rejected under 35 U.S.C. 103 as being unpatentable over Foor (US 20080113979).

The teaching of **Foor** is delineated above and incorporated herein.

Foor does not expressly disclose a combination wherein the components are as recited in claims 6-8, 10 or 12.

However the said combinations and compositions **would have been obvious** to one of ordinary skill in the art because Foor does teach that the combination may be

nay number of fungicides such as 2 or 3 or more classes of fungicides. Foor specifically recites that the combinations of fungicides provide more effective results in reducing or controlling the fungal diseases in plants than application of a single or a combination of two fungicides. As such one of ordinary skill in the art is more than motivated to combine three or four different fungicides in order to attack the pathogens by different mechanisms of action and have a better chance of control.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on nonstatutory double patenting provided the reference application or patent either is shown to be

commonly owned with the examined application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement. See MPEP § 717.02 for applications subject to examination under the first inventor to file provisions of the AIA as explained in MPEP § 2159. See MPEP §§ 706.02(l)(1) - 706.02(l)(3) for applications not subject to examination under the first inventor to file provisions of the AIA. A terminal disclaimer must be signed in compliance with 37 CFR 1.321(b).

The USPTO Internet website contains terminal disclaimer forms which may be used. Please visit www.uspto.gov/patent/patents-forms. The filing date of the application in which the form is filed determines what form (e.g., PTO/SB/25, PTO/SB/26, PTO/AIA/25, or PTO/AIA/26) should be used. A web-based eTerminal Disclaimer may be filled out completely online using web-screens. An eTerminal Disclaimer that meets all requirements is auto-processed and approved immediately upon submission. For more information about eTerminal Disclaimers, refer to www.uspto.gov/patents/process/file/efs/guidance/eTD-info-I.jsp.

Claims 1-17 are rejected on the ground of nonstatutory double patenting as being unpatentable over claims 1-7 of U.S. Patent No. **10,694,744**. Although the claims at issue are not identical, they are not patentably distinct from each other because the examined claims would have been obvious over the reference claims.

Specifically the examined claims are drawn to a fungicidal combination or composition comprising at least one succinate dehydrogenase inhibitor fungicide, at least one dithiocarbamate fungicide, and at least another fungicide. The compositions

comprise the said combination and an adjuvant. Claims are also drawn to a method of foliar application of the said combination/composition.

The reference claims are drawn to a fungicidal combination, consisting of: (i) mancozeb; (ii) at least one succinate dehydrogenase inhibitor fungicide selected from the group consisting of isopyrazam, boscalid, etc; and (a) at least one quinone outside inhibitor fungicide selected from the group consisting of fenamidone, famoxadone, and a strobilurin fungicide selected from the group consisting of azoxystrobin, pyraoxystrobin, kresoxim-methyl, etc, and/or (b) at least one demethylation inhibitor fungicide selected from the group consisting of triflumizole, fenarimol, nuarimol, triarimol, and a conazole fungicide selected from the group consisting of cyproconazole, prothioconazole, tetraconazole, etc, and (iii) at least one agriculturally acceptable excipient.

Accordingly, the same combination of fungicidal active agents can be selected in both sets of claims.

Claims 1-17 are rejected on the ground of nonstatutory double patenting as being unpatentable over claims 1-12 of U.S. Patent No. **10,362,782**. Although the claims at issue are not identical, they are not patentably distinct from each other because the examined claims would have been obvious over the reference claims.

Specifically the examined claims are drawn to a fungicidal combination or composition comprising at least one succinate dehydrogenase inhibitor fungicide, at least one dithiocarbamate fungicide, and at least another fungicide. The compositions

comprise the said combination and an adjuvant. Claims are also drawn to a method of foliar application of the said combination/composition.

The reference claims are drawn to a fungicidal combination, consisting of: (i) mancozeb; (ii) prothioconazole, and (a) at least one succinate dehydrogenase inhibitor fungicide selected from the group consisting of isopyrazam, penflufen, penthiopyrad, sedaxane, and boscalid; or (b) at least one quinone outside inhibitor fungicides selected from the group consisting of fenamidone, famoxadone, and a strobilurin fungicide selected from the group consisting of azoxystrobin, pyraoxystrobin, pyraclostrobin and trifloxystrobin; or (c) at least one demethylation inhibitor fungicide selected from the group consisting of fenarimol, nuarimol, triarimol, and a conazole fungicide selected from the group consisting of clotrimazole, oxpoconazole, cyproconazole, prothioconazole, tebuconazole, tetraconazole,etc; and (iii) at least one agriculturally acceptable excipient.

Accordingly, the same combination of fungicidal active agents can be selected in both sets of claims.

Claims 1-3, 6-8, 12 and 16-17 are rejected on the ground of nonstatutory double patenting as being unpatentable over claim 1 of U.S. Patent No. **10,537,101** in view of Gewehr et al (US 20090131462).

Although the claims at issue are not identical, they are not patentably distinct from each other because the examined claims would have been obvious over the reference claims in view of Gewehr et al.

Specifically the examined claims are drawn to a fungicidal combination or composition comprising at least one succinate dehydrogenase inhibitor fungicide, at least one dithiocarbamate fungicide, and at least another fungicide. The compositions comprise the said combination and an adjuvant. Claims are also drawn to a method of foliar application of the said combination/composition.

The reference claims are drawn to a method of reducing phytotoxicity of a fungicidal combination consisting of tebuconazole or prothioconazole and a strobilurin fungicide in soybean cultivars, the method comprising: (i) adding to a spray tank 1.0 kg/ha to 5.0 kg/ha of mancozeb and premixed tebuconazole or prothioconazole and strobilurin fungicide; (ii) triggering the spray tank agitator to produce a homogenized syrup; and (iii) applying the homogenized syrup to top leaves of a soybean crop, wherein adding mancozeb to the fungicidal combination consisting of tebuconazole or prothioconazole and a strobilurin fungicide decreases the phytotoxicity of the tebuconazole or prothioconazole to the soybean crop in comparison to a method lacking adding mancozeb.

Gewehr et al teach fungicidally active composition which comprises, penthiopyrad, at least one particular further fungicide, an adjuvant and a method for controlling harmful fungi using such a composition for controlling harmful fungi in plants such as soybean. The fungicides include penthiopyrad, mancozeb, cyproconazole and pyraclostrobin.

Accordingly, one of ordinary skill in the art would have been motivated to have added a different fungicidal agent such as a succinate dehyrogenase inhibitor to the combination of reference claim for additional benefit in controlling fungal diseases in

plants such as soybean with a reasonable expectation of success because Gewehr et al states that the said combinations have superior effect.

Claims 1-3, 6-8, 12 and 16-17 are rejected on the ground of nonstatutory double patenting as being unpatentable over claim 1 of U.S. Patent No. **10,694,745** in view of Gewehr et al (US 20090131462).

Although the claims at issue are not identical, they are not patentably distinct from each other because the examined claims would have been obvious over the reference claims in view of Gewehr et al.

Specifically the examined claims are drawn to a fungicidal combination or composition comprising at least one succinate dehydrogenase inhibitor fungicide, at least one dithiocarbamate fungicide, and at least another fungicide. The compositions comprise the said combination and an adjuvant. Claims are also drawn to a method of foliar application of the said combination/composition.

The reference claims are drawn to A kit comprising a fungicidal combination consisting of (i) mancozeb, (ii) at least one quinone outside inhibitor, and (iii) at least one demethylation inhibitor.

Gewehr et al teach fungicidally active composition which comprises, penthiopyrad, at least one particular further fungicide, an adjuvant and a method for controlling harmful fungi using such a composition for controlling harmful fungi in plants such as soybean. The fungicides include penthiopyrad, mancozeb, cyproconazole and pyraclostrobin.

Accordingly, one of ordinary skill in the art would have been motivated to have added a different fungicidal agent such as a succinate dehyrogenase inhibitor to the combination of reference claim for additional benefit in controlling fungal diseases in plants such as soybean with a reasonable expectation of success because Gewehr et al states that the said combinations have superior effect.

Claims 1-3, 6-8, 12 and 16-17 are rejected on the ground of nonstatutory double patenting as being unpatentable over claim 1 of U.S. Patent No. **10,448,636** in view of Gewehr et al (US 20090131462).

Although the claims at issue are not identical, they are not patentably distinct from each other because the examined claims would have been obvious over the reference claims in view of Gewehr et al.

Specifically the examined claims are drawn to a fungicidal combination or composition comprising at least one succinate dehydrogenase inhibitor fungicide, at least one dithiocarbamate fungicide, and at least another fungicide. The compositions comprise the said combination and an adjuvant. Claims are also drawn to a method of foliar application of the said combination/composition.

The reference claims are drawn to an anti-resistance method for preventing or delaying the development of a fungal disease in a soybean or wheat crop, the method comprising: (i) adding to a spray tank, mancozeb (manganese ethylene bis(dithiocarbamate)+Zn) in an amount of 1.0 kg/ha to 5.0 kg/ha, and a prefabricated mixture of fungicides comprising: a quinone outside inhibitor fungicide (QoI), which is a strobilurin, and a demethylation inhibitor fungicide (DMI), which is a triazole; (ii)

triggering spray tank agitator to form a homogenized syrup; and (iii) applying the homogenized syrup to the crop; wherein Phakopsora pachyrhizi is a causal agent of rust in the soybean crop, and Drechslera tritici-repentis is a causal agent of yellow leaf spot in the wheat crop, and wherein the addition of the mancozeb to the quinone outside inhibitor and the demethylation inhibitor increases the resistance of the crop to the disease in comparison to the method lacking mancozeb.

Gewehr et al teach fungicidally active composition which comprises, penthiopyrad, at least one particular further fungicide, an adjuvant and a method for controlling harmful fungi using such a composition for controlling harmful fungi in plants such as soybean. The fungicides include penthiopyrad, mancozeb, cyproconazole and pyraclostrobin.

Accordingly, one of ordinary skill in the art would have been motivated to have added a different fungicidal agent such as a succinate dehyrogenase inhibitor to the combination of reference claim for additional benefit in controlling fungal diseases in plants such as soybean with a reasonable expectation of success because Gewehr et al states that the said combinations have superior effect.

Claims 1-17 are provisionally rejected on the ground of nonstatutory double patenting as being unpatentable over claims 1-6 of copending Application No. **16/785,313** (US 20200170251) in view of Gewehr et al (US 20090131462).

Although the claims at issue are not identical, they are not patentably distinct from each other because the examined claims would have been obvious over the reference claims in view of Gewehr et al.

Specifically the examined claims are drawn to a fungicidal combination or composition comprising at least one succinate dehydrogenase inhibitor fungicide, at least one dithiocarbamate fungicide, and at least another fungicide. The compositions comprise the said combination and an adjuvant. Claims are also drawn to a method of foliar application of the said combination/composition.

The reference claims are drawn to a composition comprising a fungicidal combination and at least one agriculturally acceptable excipient, wherein the fungicidal combination consists of: (a) a multi-site contact fungicide selected from the group consisting of copper oxychloride, copper sulfate, copper hydroxide, and tribasic copper sulfate (Bordeaux mixture); (b) a first systemic fungicide that is a succinate dehydrogenase inhibitor; and (c) a second systemic fungicide selected from the group consisting of a quinone outside inhibitor, a quinone inside inhibitor, or a demethylation inhibitor.

Gewehr et al teach fungicidally active composition which comprises, penthiopyrad, at least one particular further fungicide, an adjuvant and a method for controlling harmful fungi using such a composition for controlling harmful fungi in plants such as soybean. The fungicides include penthiopyrad, mancozeb, cyproconazole and pyraclostrobin.

Accordingly, one of ordinary skill in the art would have been motivated to have added a different fungicidal agent such as a dithiocarbamate fungicide to the combination of reference claim for additional benefit in controlling fungal diseases in plants such as soybean with a reasonable expectation of success because Gewehr et al states that the said combinations have superior effect.

This is a provisional nonstatutory double patenting rejection.

Claims 1-17 are rejected.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mina Haghighatian whose telephone number is (571)272-0615. The examiner can normally be reached on M-F, 7-5 EST.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at http://www.uspto.gov/interviewpractice.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sue Liu can be reached on 571-272-5539. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see https://ppair-my.uspto.gov/pair/PrivatePair. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Mina Haghighatian/

Mina Haghighatian
Primary Examiner
Art Unit 1616

Notice of References Cited

Application/Control No.	Applicant(s)/Patent Under Reexamination
16/347,283	FABRI et al.
Examiner	**Art Unit**
Mina Haghighatian	1616

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*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-10694744-B2	06-2020	Oliveira; Gilson Aparecido Hermenegildo de	A01N25/00	1/1
*	B	US-10362782-B2	07-2019	Oliveira; Gilson Aparecido Hermenegildo de	A01N43/653	1/1
*	C	US-10537101-B2	01-2020	Oliveira; Gilson Aparecido Hermenegildo de	A01N43/653	1/1
*	D	US-10694745-B2	06-2020	Oliveira; Gilson Aparecido Hermenegildo de	A01N43/653	1/1
*	E	US-10448636-B2	10-2019	Oliveira; Gilson Aparecido Hermenegildo de	A01N43/40	1/1
*	F	US-20200170251-A1	06-2020	Hermenegildo de OLIVEIRA; Gilson Aparecido	A01N25/00	1/1
*	G	US-20160360751-A1	12-2016	OLIVEIRA; Gilson Aparecido Hermenegildo de	A01N43/54	1/1
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Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/347,283	FABRI et al.
	Examiner	Art Unit
	Mina Haghighatian	1616

CPC - Searched*		
Symbol	Date	Examiner

CPC Combination Sets - Searched*		
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US Classification - Searched*			
Class	Subclass	Date	Examiner

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes		
Search Notes	Date	Examiner
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NPL-Text and Inventor names searched	08/14/2020	mh
Google patent search	08/14/2020	mh
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IDS considered	08/14/2020	mh
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Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	16/347,283	FABRI et al.
	Examiner	Art Unit
	Mina Haghighatian	1616

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16/347,283	05/03/2019 RULE	504	1616	UP20010US (FPAA06284)

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**** CONTINUING DATA **************************
This application is a 371 of PCT/IB2017/056710 10/30/2017

**** FOREIGN APPLICATIONS **************************
INDIA 201631037704 11/04/2016

**** IF REQUIRED, FOREIGN FILING LICENSE GRANTED ****
06/03/2019

Foreign Priority claimed ☑ Yes ☐ No 35 USC 119(a-d) conditions met ☑ Yes ☐ No ☐ Met after Allowance Verified and Acknowledged /MINA HAGHIGHATIAN/ Examiner's Signature Initials	STATE OR COUNTRY	SHEETS DRAWINGS	TOTAL CLAIMS	INDEPENDENT CLAIMS
	BRAZIL	0	17	4

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TITLE
FUNGICIDAL COMBINATIONS

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Doc description: Information Disclosure Statement (IDS) Filed

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(Not for submission under 37 CFR 1.99)

Application Number	
Filing Date	
First Named Inventor	Carlow Eduardo FABRI
Art Unit	
Examiner Name	
Attorney Docket Number	UP20010US

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	1	20080113979	A1	2008-05-15	FOOR	
	2	20090131462	A1	2009-05-21	GEWEHR ET AL	

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	1	2015079334	WO	A1	2015-06-04	UPL LIMITED		

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Application Number	
Filing Date	
First Named Inventor	Carlow Eduardo FABRI
Art Unit	
Examiner Name	
Attorney Docket Number	UP20010US

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
	1	BRENT K. J. et al.; "Fungicide Resistance in Crop Pathogens: How Can It Be Managed?"; 2nd Revised Edition, Fungicide Resistance Action Committee, 2007, ISBN 90-72398-07-6; 60 pages	
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Examiner Signature	/MINA HAGHIGHATIAN/	Date Considered	08/17/2020

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Application Number	
Filing Date	
First Named Inventor	Carlow Eduardo FABRI
Art Unit	
Examiner Name	
Attorney Docket Number	UP20010US

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Karen A. LeCuyer/	Date (YYYY-MM-DD)	2019-05-03
Name/Print	Karen A. LeCuyer	Registration Number	51928

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these record s.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

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5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

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Day : Thursday
Date: 8/13/2020
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Inventor Name Search Result

Your Search was:

Last Name = SHROFF
First Name = JAIDEV

Application#	Patent#	PG Pub#	Status	Date Filed	Title	Examiner Name	Inventor Name
60512851	Not Issued		159	10/22/2003	Insecticidal granular composition with enhanced synergistic activity	,	SHROFF, JAIDEV R.
60512920	Not Issued		159	10/22/2003	Process for the granular preparation of synergistic insecticidal composition	,	SHROFF, JAIDEV R.
15752513	Not Issued	20180228147	71	02/13/2018	SOLID AGROCHEMICAL COMPOSITIONS	SCHLIENTZ,NATHAN	SHROFF, JAIDEV RAAJNIKANT
10889213	7531187	20060014724	250	07/13/2004	SYNERGISTIC INSECTICIDAL COMPOSITION CONTAINING CHLORONICOTYNYLE AND PYRETHROIDS COMPOUNDS	LEVY,NEIL	SHROFF, JAIDEV RAINIKANT
10888512	7445791	20060008493	150	07/12/2004	SYNERGISTIC INSECTICIDAL COMPOSITION CONTAINING CHLORONICOTYNYLE AND ORGANOSPHOSPHORUS COMPOUNDS	LEVY,NEIL	SHROFF, JAIDEV RAJNIKANT
10970726	8142802	20050142158	250	10/22/2004	INSECTICIDAL COMPOSITION WITH ENHANCED SYNERGISTIC ACTIVITY	LEVY,NEIL	SHROFF, JAIDEV RAJNIKANT
11168994	7229949	20060003014	150	06/29/2005	SAFE DELIVERY SYSTEM FOR AGRICULTURALLY ACTIVE MATERIAL	PRYOR,ALTON	SHROFF, JAIDEV RAJNIKANT
11612370	7951390	20070196410	150	12/28/2006	SLOW-RELEASE MICROCAPSULE COMPOSITION FOR SAFE DELIVERY OF AGRICULTURALLY ACTIVE MATERIAL	PRYOR,ALTON	SHROFF, JAIDEV RAJNIKANT
12155985	9220271	20080312320	150	06/12/2008	Non-dusty, free flowing, storage stable solid composition and a process for its preparation	FRAZIER,BARBARA	SHROFF, JAIDEV RAJNIKANT
12418050	Not Issued	20090208423	161	04/03/2009	Synergistic Insecticidal Composition Containing Chloronicotynyle and Pyrethroids Compounds	LEVY,NEIL	SHROFF, JAIDEV RAJNIKANT
12421453	Not	20090203746	161	04/09/2009	Synergistic Insecticidal	LEVY,NEIL	SHROFF,

	Issued				Composition Containing Chloronicotynyle and Pyrethroids Compounds		JAIDEV RAJNIKANT
12598752	8309765	20100144532	150	11/03/2009	PROCESS FOR MANUFACTURE OF HIGH PURITY D-(-)-N,N-DIETHYL-2-(ALPHA-NAPHTHOXY) PROPIONAMIDE	KUMAR,SHAILENDRA	SHROFF, JAIDEV RAJNIKANT
12775888	9204629	20110275710	150	05/07/2010	AGRICULTURAL PESTICIDE FORMULATIONS AND PROCESS FOR MAKING THE SAME	NIELSEN,THOR	SHROFF, JAIDEV RAJNIKANT
12845861	8815773	20110028323	250	07/29/2010	Herbicidal Combination	BRANSON,DANIEL	SHROFF, JAIDEV RAJNIKANT
12863235	Not Issued	20110015066	161	07/16/2010	Herbicidal Composition	HOLT,ANDRIAE	SHROFF, JAIDEV RAJNIKANT
13043380	Not Issued	20110212151	161	03/08/2011	Synergistic Insecticidal Composition Containing Chloronicotynyle and Pyrethroids Compounds	LEVY,NEIL	SHROFF, JAIDEV RAJNIKANT
13520791	Not Issued	20120322661	161	08/22/2012	Organized Liquid Mixture	ANTHOPOLOS,PETER	SHROFF, JAIDEV RAJNIKANT
13576181	9288979	20120309627	150	07/31/2012	Microencapsulated Pendimethalin Comprising Alkali or Alkaline Earth Metal Salt of Organic Acid	ROBINSON,LISBETH	SHROFF, JAIDEV RAJNIKANT
13582984	9034795	20120329656	150	09/05/2012	Stable Capsule Suspension of Clomazone	PALLAY,MICHAEL	SHROFF, JAIDEV RAJNIKANT
13839972	9307765	20140274717	150	03/15/2013	SELECTIVE WEED CONTROL USING D-NAPROPAMIDE	PRYOR,ALTON	SHROFF, JAIDEV RAJNIKANT
13882580	8993788	20130217900	150	04/30/2013	CHIRAL INTERMEDIATES USEFUL FOR THE PREPARATION OF HYDROXYPHOSPHINE LIGANDS	MAURO,JOHN	SHROFF, JAIDEV RAJNIKANT
13963140	Not Issued	20140044765	161	08/09/2013	STABLE FORMULATION	LAZARO,DOMINIC	SHROFF, JAIDEV RAJNIKANT
14212269	9155308	20140274693	150	03/14/2014	Agricultural Pesticide Formulation	PRYOR,ALTON	SHROFF, JAIDEV RAJNIKANT
14238069	9554577	20140200141	150	02/10/2014	HERBICIDAL FORMULATION	SHIN,MONICA	SHROFF, JAIDEV RAJNIKANT
14436882	9451769	20150272125	150	04/18/2015	Fungicidal Composition Comprising Mancozeb and Chlorothalonil	POLANSKY,GREGG	SHROFF, JAIDEV RAJNIKANT
14674202	9370179	20150201614	150	03/31/2015	Stable encapsulated formulation of clomazone	PALLAY,MICHAEL	SHROFF, JAIDEV RAJNIKANT
14773328	9578875	20160007593	150	09/05/2015	FUNGICIDAL COMPOSITION	JAVANMARD,SAHAR	SHROFF, JAIDEV

							RAJNIKANT
14896812	10506806	20160120177	150	12/08/2015	Agrochemical Formulations	PRYOR,ALTON	SHROFF, JAIDEV RAJNIKANT
14961394	Not Issued	20160081344	161	12/07/2015	Agricultural Pesticide Formulations	NIELSEN,THOR	SHROFF, JAIDEV RAJNIKANT
15029785	10694741	20160270392	150	04/15/2016	AGROCHEMICAL COMPOSITIONS HAVING INCREASED RAINFASTNESS	PRYOR,ALTON	SHROFF, JAIDEV RAJNIKANT
15039463	9788544	20160360751	150	05/26/2016	A METHOD FOR CONTROLLING RUST	MURRAY,JEFFREY	SHROFF, JAIDEV RAJNIKANT
15057745	10342230	20160174551	150	03/01/2016	A ZC COMPOSITION COMPRISING MICROENCAPSULATED PENDIMETHALIN	SULLIVAN,DANIELLE	SHROFF, JAIDEV RAJNIKANT
15094397	10080364	20160219877	150	04/08/2016	SELECTIVE WEED CONTROL USING D-NAPROPAMIDE	PRYOR,ALTON	SHROFF, JAIDEV RAJNIKANT
15115553	Not Issued	20170181434	71	07/29/2016	STABLE HERBICIDAL COMPOSITIONS	HIRT,ERIN	SHROFF, JAIDEV RAJNIKANT
15482515	10172348	20180000072	150	04/07/2017	LOW TOXICITY COMPOSITION	HUI,SAN MING	SHROFF, JAIDEV RAJNIKANT
15544717	10336685	20170369423	150	07/19/2017	CRYSTALLINE MODIFICATION OF PROPANIL	PRYOR,ALTON	SHROFF, JAIDEV RAJNIKANT
15564982	Not Issued	20180305618	93	10/06/2017	WATER ABSORBENT COMPOSITION	ANTHONY,JOSEPH	SHROFF, JAIDEV RAJNIKANT
15673311	10694744	20170332636	150	08/09/2017	METHOD FOR CONTROLLING RUST	WANG,SHENGJUN	SHROFF, JAIDEV RAJNIKANT
15673313	10362782	20170332637	150	08/09/2017	METHOD FOR CONTROLLING RUST	WANG,SHENGJUN	SHROFF, JAIDEV RAJNIKANT
15673316	10499638	20170332638	150	08/09/2017	METHOD FOR CONTROLLING RUST	WANG,SHENGJUN	SHROFF, JAIDEV RAJNIKANT
15721175	10701935	20180020665	150	09/29/2017	METHOD FOR CONTROLLING RUST	WANG,SHENGJUN	SHROFF, JAIDEV RAJNIKANT
15954209	10694745	20180228156	150	04/16/2018	METHOD FOR CONTROLLING RUST	WANG,SHENGJUN	SHROFF, JAIDEV RAJNIKANT
15991862	10660337	20180368412	150	05/29/2018	STABLE AGROCHEMICAL COMPOSITION AND PROCESS THEREOF	SHIAO,REI TSANG	SHROFF, JAIDEV RAJNIKANT
16140197	10485234	20190021320	150	09/24/2018	SELECTIVE WEED CONTROL USING D-NAPROPAMIDE	PRYOR,ALTON	SHROFF, JAIDEV RAJNIKANT
16323144	Not Issued	20190166845	71	02/04/2019	METHODS OF TREATMENT AND PREVENTION OF WHITE SPOT IN MAIZE CROPS	RODRIGUEZ,RAYNA	SHROFF, JAIDEV RAJNIKANT

16337571	Not Issued	20200031772	61	03/28/2019	PROCESS FOR PREPARATION OF BOSCALID ANHYDRATE FORM I AND BOSCALID ANHYDRATE FORM II	SOLOLA,TAOFIQ	SHROFF, JAIDEV RAJNIKANT
16344892	Not Issued	20190261631	30	04/25/2019	STABLE HERBICIDAL COMPOSITIONS	SILVERMAN,JANICE	SHROFF, JAIDEV RAJNIKANT
16347283	Not Issued	20190274307	30	05/03/2019	FUNGICIDAL COMBINATIONS	HAGHIGHATIAN,MINA	SHROFF, JAIDEV RAJNIKANT
16348563	Not Issued	20190269135	41	05/09/2019	TERNARY HERBICIDAL COMBINATION	CHUI,MEI PING	SHROFF, JAIDEV RAJNIKANT
16295258	10689328	20190248734	150	04/26/2019	CRYSTALLINE MODIFICATION OF PROPANIL	PRYOR,ALTON	SHROFF, JAIDEV RAJNIKANT

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Date	L1	20160360751	1	L1	L1	L1
Date	L2	20120190542	1	L2	L2	L2
Date	L3	20080113979	1	L3	L3	L3
Date	L4	20090131462	1	L4	L4	L4

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Inventor Name Search Result

Your Search was:

Last Name = FABRI
First Name = CARLOS

Application#	Patent#	PG Pub#	Status	Date Filed	Title	Examiner Name	Inventor Name
15127138	Not Issued	20170183271	161	03/06/2017	PLANT ACTIVATOR FOR SUGAR CANE AND USE THEREOF	SMITH,JENNIFER	FABRI, CARLOS
13876613	Not Issued	20150051231	161	11/05/2013	SYNERGISTIC COMBINATIONS OF TRIAZOLES, STROBILURINS AND BENZIMIDAZOLES, USES, FORMULATIONS, PRODUCTION PROCESSES AND APPLICATIONS USING THE SAME	HAGHIGHATIAN,MINA	FABRI, CARLOS EDUARDO
16323144	Not Issued	20190166845	71	02/04/2019	METHODS OF TREATMENT AND PREVENTION OF WHITE SPOT IN MAIZE CROPS	RODRIGUEZ,RAYNA	FABRI, CARLOS EDUARDO
16347283	Not Issued	20190274307	30	05/03/2019	FUNGICIDAL COMBINATIONS	HAGHIGHATIAN,MINA	FABRI, CARLOS EDUARDO
16477312	10687534	20200029569	150	07/11/2019	A METHOD TO CONTROL ADULT INSECT POPULATION	DAVIS,BRIAN	FABRI, CARLOS EDUARDO
16482519	Not Issued	20200045964	30	07/31/2019	HERBICIDAL COMBINATION	HAGHIGHATIAN,MINA	FABRI, CARLOS EDUARDO
16491639	Not Issued		19	01/01/0001	FUNGICIDAL COMBINATIONS	,	FABRI, CARLOS EDUARDO
16619964	Not Issued		19	01/01/0001	NOVEL PESTICIDAL COMBINATIONS	,	FABRI, CARLOS EDUARDO
16620161	Not Issued	20200138025	19	12/06/2019	NOVEL PESTICIDAL COMBINATIONS	,	FABRI, CARLOS EDUARDO
16637380	Not Issued	0	18	01/01/0001	A Liquid Composition and Process Thereof	,	FABRI, CARLOS EDUARDO

16663914	Not Issued		19	01/01/0001	FUNGICIDAL COMBINATIONS	,	FABRI, CARLOS EDUARDO
16764500	Not Issued	0	20	05/15/2020	NOVEL COMBINATIONS OF DEFOLIANTS	,	FABRI, CARLOS EDUARDO
16962328	Not Issued	0	20	07/15/2020	Herbicidal Combinations	,	FABRI, CARLOS EDUARDO

Inventor Search Completed: No Records to Display.

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Prior Art Searches						
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Date	L3	20160360751	1	L3	L3	L3
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Date	L5	mancozeb near10 isopyrazam near10 cyproconazole	74	L5	L5	L5
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Date	L7	L5	74	L7	L7	L7
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Date	L8	20190274307	1	L8	L8	L8
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Date	L9	"A01N47/14" with "A01N 3/54" and "A01N2300/00"	0	L9	L9	L9
Date	L10	"A01N47/14" with "A01N 3/54"	0	L10	L10	L10
Date	L11	"A01N47/14" and "A01N 3/54"	0	L11	L11	L11
Date	L12	"A01N47/14" "A01N 3/54"	0	L12	L12	L12
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	DB=PGPB; PLUR=YES; OP=AND					
Date	L14	15039463	7	L14	L14	L14

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Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Filed

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	16347283
Filing Date	2019-05-03
First Named Inventor	Carlos Eduardo FABRI
Art Unit	
Examiner Name	
Attorney Docket Number	UP20010US (FPAA06284)

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Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
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Examiner Initial*	Cite No	Foreign Document Number[3]	Country Code[2]	Kind Code[4]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T[5]
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NON-PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	16347283
Filing Date	2019-05-03
First Named Inventor	Carlos Eduardo FABRI
Art Unit	
Examiner Name	
Attorney Docket Number	UP20010US (FPAA06284)

/M.H/	1	Rosenberger Presentation "Fire Blight and NEWA - How to Control Blight in 2015"; 70th North Jersey Commercial Fruit Growers Meeting; 3-4-2015, Flemington, NJ; 43 pages	☐

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EXAMINER SIGNATURE

Examiner Signature	/MINA HAGHIGHATIAN/	Date Considered	08/17/2020

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (**Not for submission under 37 CFR 1.99**)	Application Number	16347283
	Filing Date	2019-05-03
	First Named Inventor	Carlos Eduardo FABRI
	Art Unit	
	Examiner Name	
	Attorney Docket Number	UP20010US (FPAA06284)

CERTIFICATION STATEMENT

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☐ See attached certification statement.

☐ The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

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A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Karen A. LeCuyer/	Date (YYYY-MM-DD)	2019-05-08
Name/Print	Karen A. LeCuyer	Registration Number	51928

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Global Dossier

Office

US

Type

Pre-grant Publication

20190274307

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US 20190274307 21 Members in Patent Family (5 currently shown) ()

« ()

IP Office Type

All IP5 Offices

- EPO
- SIPO
- KIPO
- JPO
- USPTO

Non-IP5 Offices

()	Office ()	Application ()	Applicant	Title ()	App. Date ()	Priority #	Pub. # ()	Pub. Date
()	KR	20197013280 View Dossier ()	1) UPL LIMITED,	FUNGICIDAL COMBINATIONS	10/30/2017	IN 201631037704 IB 2017056710	KR 20190082218 A ()	07/09/2019
()	US	16347283 View Dossier ()			10/30/2017	IN 201631037704 IB 2017056710	US 20190274307 A1 ()	09/12/2019

()	Office ()	Application ()	Applicant	Title ()	App. Date ()	Priority #	Pub. # ()	Pub. Date
()	JP	2019522363 View Dossier ()	1) You PL Limited, 2) Patent business corporation Washida & Associates,	COMBINATIONS OF ANTIFUNGAL AGENTS	10/30/2017	IN 201631037704 IB 2017056710	JP 2019533683 A ()	11/21/2019
()	EP	17867258 View Dossier ()	1) UPL Ltd,	FUNGICIDAL COMBINATIONS	10/30/2017	IN 201631037704 IB 2017056710	EP 3534711 A1 ()	09/11/2019
()	CN	201780068179 Refresh Dossier ()			10/30/2017	IN 201631037704 IB 2017056710	CN 109906034 A ()	06/18/2019

(http://www.uspto.gov/)

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USPTO BACKGROUND

FEDERAL GOVERNMENT

Web Search History

date, time	web site	search string
8/12/2020 1:54:06 PM	Google	google patent search
8/12/2020 4:23:09 PM	Google	propagation definition
8/13/2020 1:24:47 PM	Google Scholar	mancozeb fungicide combination inhibitor azoxystrobin
8/13/2020 1:24:47 PM	Google Patents	Keyword Group 1 [mancozeb] Keyword Group 2 [fungicide] Keyword Group 3 [combination] Keyword Group 4 [inhibitor] Keyword Group 5 [azoxystrobin] Before Priority Date: priority:20161104

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A METHOD FOR CONTROLLING RUST

DE OLIVEIRA, Gilson Aparecido Hermenegildo; SHROFF, Jaidev Rajnikant; SHROFF, Vikram Rajnikant (Inventors). UPL LIMITED (Assignee). **WO 2015079334 A1**. (Published 04 Jun 2015).

Highlighting: Off | Single | Multi

Patent | Citations | Images (1) | Family (47 members)

Bibliographic information | Claims | Legal status | Specification Show Images

Abstract (summary)

English:

A combination comprising a multi-site contact fungicide, a first systemic fungicide and optionally a second systemic fungicide and a method using the same.

French:

La présente invention concerne une combinaison comportant un fongicide de contact à action multi-sites, un premier fongicide systémique et éventuellement un second fongicide systémique ainsi qu'un procédé mettant en œuvre ladite combinaison.

Indexing (details)

Cite

Assignee

UPL LIMITED
Agrochemical Plant, Durgachak, Midnapore Dist., West Bengal, Haldia 721 602, IN

IN (Residence); IN (Nationality)
Patent rights: All

Inventor

DE OLIVEIRA, Gilson Aparecido Hermenegildo
United Phosphorus do Brasil Ltda, Avenida Jandira, 257, Cjt 142 / 143, Indianopolis, Sao Paulo - SP, BR
Patent rights: All
SHROFF, Jaidev Rajnikant
Uniphos House, Madhu Park, 11th Road, Khar (West), State of Maharashtra, Mumbai 400 052, IN
Patent rights: All
SHROFF, Vikram Rajnikant
Uniphos House, Madhu Park, 11th Road, Khar (West), State of Maharashtra, Mumbai 400 052, IN
Patent rights: All

Alternate title

PROCEDE DE LUTTE CONTRE DE LA ROUILLE (French)

Publication number

WO 2015079334 A1 (04 June 2015)

Application number

WO 2014IB64891 (27 September 2014)

Priority number

IN 2013KO1336 (26 November 2013)

Related publication

Publication type	Publication number	Publication date	Application number	Application date
PCT	WO 2015079334	04 June 2015	WO 2014IB64891	27 September 2014

CPC classification

A01N 47/14 (main); A01N 25/00 (main); A01N 43/54 (main); A01N 43/40; A01N 43/54; A01N 43/653; A01N 47/24; A01N 47/14; A01N 47/10; A01N 2300/00; A01N 37/34; A01N 37/44; A01N 59/00; A01N 25/00

More details

IPC classification

Version 8: A01N 37/44 (main); A01N 37/34; A01N 43/54; A01N 43/653; A01P 3/00

More details

Publication language

English

Application language

English

Legal representative

MAJUMDAR, Subhatosh et al. (Attorney)
S Majumdar & CO, 5, Harish Mukherjee Road, Kolkata 700025, IN

Designated states

EPO: AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR, EPO: AL AT BE BG CH CY CZ DE

	DK EE ES FI FR GB GR HR HU IE IS IT LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR National: AE AG AL AM AO AT AU AZ BA BB BG BH BN BR BW BY BZ CA CH CL CN CO CR CU CZ DE DK DM DO DZ EC EE EG ES FI GB GD GE GH GM GT HN HR HU ID IL IN IR IS JP KE KG KN KP KR KZ LA LC LK LR LS LU LY MA MD ME MG MK MN MW MX MY MZ NA NG NI NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SK SL SM ST SV SY TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW Extended state: BA ME Eurasian PO: AM AZ BY KG KZ RU TJ TM OAPI: BF BJ CF CG CI CM GA GN GQ GW KM ML MR NE SN TD TG ARIPO: BW GH GM KE LR LS MW MZ NA RW SD SL ST SZ TZ UG ZM ZW
Document features	11 literature citations; 29 cited patents; 7 citing patents 1 20 claims; 14 legal status entries
Word count	8007
Source attribution	WIPO PCT Patents Fulltext, © Publisher specific
Accession number	WO2015079334A1
Document URL	https://dialog.proquest.com/professional/docview/1687722533?accountid=131444
First available	2015-06-12
Updates	2019-03-02 2019-05-31 2019-06-28 2019-07-13 2019-09-06 2019-11-01 2019-11-15 2019-12-21 2020-02-14 2020-02-21 2020-03-20 2020-03-27 2020-04-10 2020-05-02 2020-05-14 2020-05-22 2020-05-29 2020-06-23

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Date	L11	10488636	3	L11	L11	L11
	DB=PGPB; PLUR=YES; OP=AND					
Date	L12	15954209	1	L12	L12	L12
Date	L13	15721175	2	L13	L13	L13

END OF SEARCH HISTORY

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
16/347,283	05/03/2019	Carlos Eduardo FABRI	UP20010US (FPAA06284)

CONFIRMATION NO. 4341

23413
CANTOR COLBURN LLP
20 Church Street
22nd Floor
Hartford, CT 06103

PUBLICATION NOTICE

OC000000111071745

Title:FUNGICIDAL COMBINATIONS

Publication No.US-2019-0274307-A1
Publication Date:09/12/2019

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The above-identified application will be electronically published as a patent application publication pursuant to 37 CFR 1.211, et seq. The patent application publication number and publication date are set forth above.

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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
16/347,283	05/03/2019	1616	1720	UP20010US (FPAA06284)	17	4

CONFIRMATION NO. 4341

CORRECTED FILING RECEIPT

23413
CANTOR COLBURN LLP
20 Church Street
22nd Floor
Hartford, CT 06103

Date Mailed: 09/06/2019

Receipt is acknowledged of this non-provisional utility patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF FIRST INVENTOR, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection.

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Inventor(s)

Carlos Eduardo FABRI, Sao Paulo -SP, BRAZIL;
Rajju Devidas SHROFF, Mumbai, Maharashtra, INDIA;
Jaidev Rajnikant SHROFF, Dubai, UNITED ARAB EMIRATES;
Vikram Rajnikant SHROFF, Dubai, UNITED ARAB EMIRATES;

Applicant(s)

UPL LTD, West Bengal, Haldia, INDIA

Power of Attorney: None

Domestic Priority data as claimed by applicant

This application is a 371 of PCT/IB2017/056710 10/30/2017

Foreign Applications (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see http://www.uspto.gov for more information.)
INDIA 201631037704 11/04/2016

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If Required, Foreign Filing License Granted: 06/03/2019

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 16/347,283**

Projected Publication Date: 09/12/2019

Non-Publication Request: No

Early Publication Request: No

Title

FUNGICIDAL COMBINATIONS

Preliminary Class

504

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

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Combined Declaration/Assignment
U.S. National Stage Application No: 16/347,283
PCT/IB2017/056710US

DECLARATION AND ASSIGNMENT

Title of Invention **FUNGICIDAL COMBINATIONS**

As a below named inventor, I hereby declare that:
This declaration is directed to:
[x] the attached application (Attorney Docket Number up20010us(fpaa06284_sdhi Combinations), or
[x] Patent application number 16/347,283, filed on May 3, 2019
[x] which claims priority to PCT/IB2017/056710, filed on October 30, 2017, which claims priority to IN 201631037704, filed on November 4, 2016.

The above-identified application was made or authorized to be made by me, and I have reviewed and understand the contents of the application, including the claims.

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

I am aware of the duty to disclose to the United States Patent and Trademark Office all information known to me to be material to patentability as defined in 37 CFR Section 1.56.

Whereas, each undersigned inventor has made certain inventions, improvements, and discoveries (herein referred to as the "INVENTION") disclosed in the above-identified patent application (herein referred to as the "APPLICATION");

Whereas, UPL LTD an Indian Company, with an office at or having a place of business at Agrochemical Plant, Durgachak, Midnapore Dist, Haldia 721602, West Bengal, India (herein referred to as "ASSIGNEE"), desires to acquire or has acquired, and each undersigned inventor acknowledges the obligation to assign to ASSIGNEE, and the parties desire to use this Declaration and Assignment to memorialize the grant to ASSIGNEE of the entire worldwide right, title, and interest in and to the INVENTION including all embodiments thereof, and in and to any and all patent applications and patents directed thereto;

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I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

Signature: _____ Date: 13/7/2019
Name of Inventor: **CARLOS EDUARDO FABRI**

Witness: _____ Date: 13/7/2019
Witness: _____ Date: 13.07.2019

Combined Declaration/Assignment
U.S. National Stage Application No: 16/347,283
PCT/IB2017/056710US

DECLARATION AND ASSIGNMENT

Title of Invention **FUNGICIDAL COMBINATIONS**

As a below named inventor, I hereby declare that:
This declaration is directed to:
[x] the attached application (Attorney Docket Number up20●10us(fpaa06284_sdhi Combinations), or
[x] Patent application number 16/347,283, filed on May 3, 2●19
[x] which claims priority to PCT/IB2017/056710, filed on October 30, 2017, which claims priority to● IN 201631037704, filed on November 4, 2016.

Signature: _____ Date: 13/7/2019
Name of Inventor: **RAJJU DEVIDAS SHROFF**

_____ Date: 13/7/2019 _____ Date: 13/7/2019
Witness: Witness:

Signature: _____ Date: 13/7/2019
Name of Inventor: **JAIDEV RAJNIKANT SHROFF**

_____ Date: 13/7/2019 _____ Date: 13/7/2019
Witness: Witness:

Signature: _____ Date: 13/7/2019
Name of Inventor: **VIKRAM RAJNIKANT SHROFF**

_____ Date: 13/7/2019 _____ Date: 13/7/2019
Witness: Witness:

Electronic Acknowledgement Receipt

EFS ID:	36621157
Application Number:	16347283
International Application Number:	
Confirmation Number:	4341
Title of Invention:	FUNGICIDAL COMBINATIONS
First Named Inventor/Applicant Name:	Carlos Eduardo FABRI
Customer Number:	23413
Filer:	Karen A. LeCuyer/Jackie Boya
Filer Authorized By:	Karen A. LeCuyer
Attorney Docket Number:	UP20010US (FPAA06284)
Receipt Date:	18-JUL-2019
Filing Date:	03-MAY-2019
Time Stamp:	11:27:05
Application Type:	U.S. National Stage under 35 USC 371

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Oath or Declaration filed	8CI1478.PDF	933689 c757ef20e6169018f174854863acf3f7416cd3a	no	2

Warnings:

The page size in the PDF is too large. The pages should be 8.5 x 11 or A4. If this PDF is submitted, the pages will be resized upon entry into the Image File Wrapper and may affect subsequent processing

Information:

Total Files Size (in bytes):	933689

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.
National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.
New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PG



OIPE Mail Room JUN 2 6 2019

CANTOR COLBURN LLP
INTELLECTUAL PROPERTY ATTORNEYS
20 Church Street
22 Floor
Hartford, CT 06103-3207
Telephone: (860) 286-2929
FAX: (860) 286-0115

FACSIMILE TRANSMITTAL SHEET

DATE: June 26, 2019

TO: D.O. / E.O. RE: OIPE – National Phase Filing Receipt Correction

FAX NO.: 1-571-273-3201

FROM: Keshauna Smith-Thorpe

OUR REF: UP20010US APPL NO.: 16/347,283

TITLE: FUNGICIDAL COMBINATIONS

TOTAL NUMBER OF PAGES SENT
(INCLUDING THIS COVER SHEET): 1

COMMENTS: Please correct error circled on page 1 of the attached Filing Receipt.

As per the preliminary amendment on file the claims should read:
"4"

Thank you.

If there are any problems with this transmission, please call (860) 286-2929 and ask for Keshauna Smith-Thorpe at extension 1316.

PAGE 1/2 * RCVD AT 6/26/2019 4:26:37 PM [Eastern Daylight Time] * SVR:W-PTOFAX-002/44 * DNIS:2733201 * CSID:8602860115 * ANI:8602860115 * DURATION (mm-ss):00-42

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

(4)

APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL. FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
16/347,283	05/03/2019		1720	UP20010US (FPAA06284)	17	2

CONFIRMATION NO. 4341

23413
CANTOR COLBURN LLP
20 Church Street
22nd Floor
Hartford, CT 06103

FILING RECEIPT



Date Mailed: 06/05/2019

Receipt is acknowledged of this non-provisional utility patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF FIRST INVENTOR, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection.

Please verify the accuracy of the data presented on this receipt. If an error is noted on this Filing Receipt, please submit a written request for a corrected Filing Receipt, including a properly marked-up ADS showing the changes with strike-through for deletions and underlining for additions. If you received a "Notice to File Missing Parts" or other Notice requiring a response for this application, please submit any request for correction to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections provided that the request is grantable.

Inventor(s)

Carlos Eduardo FABRI, Sao Paulo -SP, BRAZIL;
Rajju Devidas SHROFF, Mumbai, Maharashtra, INDIA;
Jaidev Rajnikant SHROFF, Dubai, UNITED ARAB EMIRATES;
Vikram Rajnikant SHROFF, Dubai, UNITED ARAB EMIRATES;

Applicant(s)

UPL LTD, West Bengal, Haldia, INDIA

Power of Attorney: None

Domestic Priority data as claimed by applicant

This application is a 371 of PCT/IB2017/056710 10/30/2017

Foreign Applications (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see http://www.uspto.gov for more information.)
INDIA 201631037704 11/04/2016

Permission to Access Application via Priority Document Exchange: Yes

Permission to Access Search Results: Yes

Applicant may provide or rescind an authorization for access using Form PTO/SB/39 or Form PTO/SB/69 as appropriate.

PAGE 2/2 * RCVD AT 6/26/2019 4:26:37 PM [Eastern Daylight Time] * SVR:W-PTOFAX-002/44 * DNIS:2733201 * CSID:8602860115 * ANI:8602860115 * DURATION (mm-ss):00-42

MULTIPLE DEPENDENT CLAIM FEE CALCULATION SHEET Substitute for Form PTO-1360 (For use with Form PTO/SB/06)	Application Number 16347283	Filing Date
	Applicant(s) Carlos FABRI	
	* May be used for additional claims or amendments	

CLAIMS	AS FILED		AFTER FIRST AMENDMENT		AFTER SECOND AMENDMENT	
	Indep	Depend	Indep	Depend	Indep	Depend
1	1		1			
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12	1			1		
13		1		1		
14		13		1		
15		(1)		1		
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Total Claims	28		17		0	

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U.S. APPLICATION NO.	FIRST NAMED INVENTOR	ATTY. DOCKET NO.
16/347,283	Carlos Eduardo FABRI	UP20010US (FPAA06284)

23413
CANTOR COLBURN LLP
20 Church Street
22nd Floor
Hartford, CT 06103

INTERNATIONAL APPLICATION NO.	
PCT/IB2017/056710	
I. A. FILING DATE	PRIORITY DATE
10/30/2017	11/04/2016

CONFIRMATION NO. 4341
371 ACCEPTANCE LETTER



Date Mailed: 06/05/2019

NOTICE OF ACCEPTANCE OF APPLICATION UNDER 35 U.S.C 371 AND 37 CFR 1.495

The applicant is hereby advised that the United States Patent and Trademark Office, in its capacity as a Designated / Elected Office (37 CFR 1.495), has ACCEPTED the above identified international application for national patentability examination in the United States Patent and Trademark Office.

The United States Application Number assigned to the application is shown above. A Filing Receipt will be issued for the present application in due course. **THE DATE APPEARING ON THE FILING RECEIPT AS THE "FILING DATE or 371(c) DATE" IS THE DATE ON WHICH THE LAST OF THE 35 U.S.C. 371 (c)(1) and (c)(2) REQUIREMENTS HAS BEEN RECEIVED IN THE OFFICE. THIS DATE IS SHOWN BELOW.** The filing date of the above identified application is the international filing date of the international application (Article 11(3) and 35 U.S.C. 363)

05/03/2019
DATE OF RECEIPT OF 35 U.S.C.
371(c)(1) and (c)(2) REQUIREMENTS

The following items have been received:

- Copy of the International Application filed on 05/03/2019
- Copy of the International Search Report filed on 05/03/2019
- Preliminary Amendments filed on 05/03/2019
- Information Disclosure Statements filed on 05/03/2019
- U.S. Basic National Fees filed on 05/03/2019
- Authorize Access to Search Results filed on 05/03/2019
- Priority Documents filed on 05/03/2019
- Power of Attorney filed on 05/31/2019
- Authorization to Permit Access filed on 05/03/2019
- Application Data Sheet (37 CFR 1.76) filed on 05/03/2019

Applicant is notified that the above-identified application contains the deficiencies noted below. No period for reply is set forth in this notice for correction of these deficiencies. However, if a deficiency relates to the inventor's oath or declaration, the applicant must file an oath or declaration in compliance with 37 CFR 1.63, or a substitute statement in compliance with 37 CFR 1.64, executed by or with respect to each actual inventor no later than the expiration of the time period set in the "Notice of Allowability" to avoid abandonment. See 37 CFR 1.495(c).

- Properly executed inventor's oath or declaration for the following inventor(s) has not been submitted: **Carlos Eduardo FABRI**, **Rajju Devidas SHROFF**, and **Jaidev Rajnikant SHROFF**

FORM PCT/DO/EO/903 (371 Acceptance Notice)

Applicant is reminded that any communications to the United States Patent and Trademark Office must be mailed to the address given in the heading and include the U.S. application no. shown above (37 CFR 1.5)

PAULETTE R KIDWELL

Telephone: (571) 272-0398

FORM PCT/DO/EO/903 (371 Acceptance Notice)

PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number: 16/347,283

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY FEE($)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	300
SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A	520
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	760
TOTAL CLAIMS (37 CFR 1.16(i))	17 minus 20 =	*			OR	x 100 =	0.00
INDEPENDENT CLAIMS (37 CFR 1.16(h))	2 minus 3 =	*				x 460 =	0.00
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						0.00
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							0.00
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	1580

APPLICATION AS AMENDED - PART II

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY ADDITIONAL FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE($)
AMENDMENT A	Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
	Independent (37CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY ADDITIONAL FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE($)
AMENDMENT B	Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
	Independent (37CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
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Alexandria, Virginia 22313-1450
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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
16/347,283	05/03/2019		1720	UP20010US (FPAA06284)	17	2

CONFIRMATION NO. 4341

FILING RECEIPT

23413
CANTOR COLBURN LLP
20 Church Street
22nd Floor
Hartford, CT 06103



Date Mailed: 06/05/2019

Receipt is acknowledged of this non-provisional utility patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF FIRST INVENTOR, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection.

Please verify the accuracy of the data presented on this receipt. If an error is noted on this Filing Receipt, please submit a written request for a corrected Filing Receipt, including a properly marked-up ADS showing the changes with strike-through for deletions and underlining for additions. If you received a "Notice to File Missing Parts" or other Notice requiring a response for this application, please submit any request for correction to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections provided that the request is grantable.

Inventor(s)

Carlos Eduardo FABRI, Sao Paulo -SP, BRAZIL;
Rajju Devidas SHROFF, Mumbai, Maharashtra, INDIA;
Jaidev Rajnikant SHROFF, Dubai, UNITED ARAB EMIRATES;
Vikram Rajnikant SHROFF, Dubai, UNITED ARAB EMIRATES;

Applicant(s)

UPL LTD, West Bengal, Haldia, INDIA

Power of Attorney: None

Domestic Priority data as claimed by applicant

This application is a 371 of PCT/IB2017/056710 10/30/2017

Foreign Applications (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see http://www.uspto.gov for more information.)
INDIA 201631037704 11/04/2016

Permission to Access Application via Priority Document Exchange: Yes

Permission to Access Search Results: Yes

Applicant may provide or rescind an authorization for access using Form PTO/SB/39 or Form PTO/SB/69 as appropriate.

If Required, Foreign Filing License Granted: 06/03/2019

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 16/347,283**

Projected Publication Date: 09/12/2019

Non-Publication Request: No

Early Publication Request: No
Title

FUNGICIDAL COMBINATIONS

Preliminary Class

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at http://www.uspto.gov/web/offices/pac/doc/general/index.html.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, http://www.stopfakes.gov. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

LICENSE FOR FOREIGN FILING UNDER

Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign AssetsControl, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

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The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The U.S. offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to promote and facilitate business investment. SelectUSA provides information assistance to the international investor community; serves as an ombudsman for existing and potential investors; advocates on behalf of U.S. cities, states, and regions competing for global investment; and counsels U.S. economic development organizations on investment attraction best practices. To learn more about why the United States is the best country in the world to develop technology, manufacture products, deliver services, and grow your business, visit http://www.SelectUSA.gov or call +1-202-482-6800.

SDHI Combination

Doc Code: PA..
Document Description: Power of Attorney

PTO/AIA/82A (07-13)
Approved for use through 03/31/2021. OMB 0651-0035
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

TRANSMITTAL FOR POWER OF ATTORNEY TO ONE OR MORE REGISTERED PRACTITIONERS

NOTE: This form is to be submitted with the Power of Attorney by Applicant form (PTO/AIA/82B) to identify the application to which the Power of Attorney is directed, in accordance with 37 CFR 1.5, unless the application number and filing date are identified in the Power of Attorney by Applicant form. If neither form PTO/AIA/82A nor form PTO/AIA/82B identifies the application to which the Power of Attorney is directed, the Power of Attorney will not be recognized in the application.

Application Number	16/347,283
Filing Date	05/03/2019
First Named Inventor	Carlos Eduardo FABRI
Title	Fungicidal Combinations
Art Unit	
Examiner Name	
Attorney Docket Number	UP20010US (FPAA06284_SDHI Combinations)

SIGNATURE of Applicant or Patent Practitioner

Signature	/Karen A. LeCuyer/	Date (Optional)	
Name	Karen A. LeCuyer	Registration Number	51928

Title (if Applicant is a juristic entity)

Applicant Name (if Applicant is a juristic entity) UPL LTD

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4(d) for signature requirements and certifications. If more than one applicant, use multiple forms.

☐ *Total of _____ forms are submitted.

This collection of information is required by 37 CFR 1.131, 1.32, and 1.33. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 3 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Doc Code: PA..
Document Description: Power of Attorney

PTO/AIA/82B (07-13)
Approved for use through 03/31/2021. OMB 0651-0035
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POWER OF ATTORNEY BY APPLICANT

I hereby revoke all previous powers of attorney given in the application identified in either the attached transmittal letter or the boxes below.

Application Number	Filing Date
16/347,283	05/03/2019

(Note: The boxes above may be left blank if information is provided on form PTO/AIA/82A.)

☑ I hereby appoint the Patent Practitioner(s) associated with the following Customer Number as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above: 23413

OR

☐ I hereby appoint Practitioner(s) named in the attached list (form PTO/AIA/82C) as my/our attorney(s) or agent(s), and to transact all business in the United States Patent and Trademark Office connected therewith for the patent application referenced in the attached transmittal letter (form PTO/AIA/82A) or identified above. (Note: Complete form PTO/AIA/82C.)

Please recognize or change the correspondence address for the application identified in the attached transmittal letter or the boxes above to:

☑ The address associated with the above-mentioned Customer Number

OR

☐ The address associated with Customer Number:

OR

☐ Firm or Individual Name

Address					
City		State		Zip	
Country					
Telephone		Email			

I am the Applicant (if the Applicant is a juristic entity, list the Applicant name in the box):

UPL LTD

☐ Inventor or Joint Inventor (title not required below)

☐ Legal Representative of a Deceased or Legally Incapacitated Inventor (title not required below)

☑ Assignee or Person to Whom the Inventor is Under an Obligation to Assign (provide signer's title if applicant is a juristic entity)

☐ Person Who Otherwise Shows Sufficient Proprietary Interest (e.g., a petition under 37 CFR 1.46(b)(2) was granted in the application or is concurrently being filed with this document) (provide signer's title if applicant is a juristic entity)

SIGNATURE of Applicant for Patent

The undersigned (whose title is supplied below) is authorized to act on behalf of the applicant (e.g., where the applicant is a juristic entity).

Signature		Date (Optional)
Name	Dr. Vishal Sodha	
Title	Vice President - Global Head (IPR)	

NOTE: Signature - This form must be signed by the applicant in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. If more than one applicant, use multiple forms.

☐ Total of forms are submitted.

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PTO/AIA/82C (07-13)
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POWER OF ATTORNEY BY APPLICANT

No more than ten (10) patent practitioners total may be appointed as set forth below by name and registration number. This page need not be submitted if appointing the Patent Practitioner(s) associated with a Customer Number (see form PTO/AIA/82B):

Name	Registration Number

Privacy Act Statement

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2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
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6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
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Electronic Acknowledgement Receipt

EFS ID:	36166773
Application Number:	16347283
International Application Number:	
Confirmation Number:	4341
Title of Invention:	FUNGICIDAL COMBINATIONS
First Named Inventor/Applicant Name:	Carlos Eduardo FABRI
Customer Number:	23413
Filer:	Karen A. LeCuyer/Jackie Boya
Filer Authorized By:	Karen A. LeCuyer
Attorney Docket Number:	UP20010US (FPAA06284)
Receipt Date:	31-MAY-2019
Filing Date:	
Time Stamp:	12:42:50
Application Type:	U.S. National Stage under 35 USC 371

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Power of Attorney	8AZ6202.PDF	2057199 25b1daecd635d5e0acb63aadc46273fea7c11767	no	4

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Information:

Total Files Size (in bytes):	2057199

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Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (01-10)
Approved for use through 07/31/2012. OMB 0651-0031
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	16347283
Filing Date	2019-05-03
First Named Inventor	Carlos Eduardo FABRI
Art Unit	
Examiner Name	
Attorney Docket Number	UP20010US (FPAA06284)

U.S.PATENTS

Examiner Initial*	Cite No	Patent Number	Kind Code[1]	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1					

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Examiner Initial*	Cite No	Publication Number	Kind Code[1]	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
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Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]

EFS Web 2.1.17

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	16347283
Filing Date	2019-05-03
First Named Inventor	Carlos Eduardo FABRI
Art Unit	
Examiner Name	
Attorney Docket Number	UP20010US (FPAA06284)

1	Rosenberger Presentation "Fire Blight and NEWA - How to Control Blight in 2015"; 70th North Jersey Commercial Fruit Growers Meeting; 3-4-2015, Flemington, NJ; 43 pages	☐

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EXAMINER SIGNATURE

Examiner Signature | | Date Considered |

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (**Not for submission under 37 CFR 1.99)**	Application Number	16347283
	Filing Date	2019-05-03
	First Named Inventor	Carlos Eduardo FABRI
	Art Unit	
	Examiner Name	
	Attorney Docket Number	UP20010US (FPAA06284)

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

☐ That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

☐ See attached certification statement.

☐ The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Karen A. LeCuyer/	Date (YYYY-MM-DD)	2019-05-08
Name/Print	Karen A. LeCuyer	Registration Number	51928

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The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these record s.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

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5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

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Electronic Acknowledgement Receipt

EFS ID:	35949730
Application Number:	16347283
International Application Number:	
Confirmation Number:	4341
Title of Invention:	FUNGICIDAL COMBINATIONS
First Named Inventor/Applicant Name:	Carlos Eduardo FABRI
Customer Number:	23413
Filer:	Karen A. LeCuyer/Jackie Boya
Filer Authorized By:	Karen A. LeCuyer
Attorney Docket Number:	UP20010US (FPAA06284)
Receipt Date:	08-MAY-2019
Filing Date:	
Time Stamp:	10:50:32
Application Type:	U.S. National Stage under 35 USC 371

Payment information:

Submitted with Payment	no

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Non Patent Literature	8AS3092.pdf	11139633 7a353fdcbf8d8b4b53783656b28faa41a00097a3	no	43

Warnings:

Information:

2	Information Disclosure Statement (IDS) Form (SB08)	8AS4508.pdf	262009 fb5cb69574abe10e88035dac56cea1ca8e06c81c	no	4

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Total Files Size (in bytes): 11401642

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National Stage of an International Application under 35 U.S.C. 371

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CLAIMS

1. A fungicidal combination comprising at least one succinate dehydrogenase inhibitor fungicide, at least one dithiocarbamate fungicide, and at least another fungicide.

2. The combination of claim 1, wherein the dithiocarbamate fungicide is selected from amobam, asomate, azithiram, carbamorph, cufraneb, cuprobam, disulfiram, ferbam, metam, nabam, tecoram, thiram, urbacide, ziram, dazomet, etem, milneb, mancopper, mancozeb, maneb, metiram, polycarbamate, propineb and zineb.

3. The combination of claim 2, wherein the dithiocarbamate fungicide is mancozeb.

4. The combination of claim 1, wherein the succinate dehydrogenase inhibitor is selected from pyrazole carboxamide class of succinate dehydrogenase inhibitor fungicides.

5. The combination as claimed in claim 4, wherein the pyrazole carboxamide class of succinate dehydrogenase inhibitor fungicide is selected from benzovindiflupyr, bixafen, fluxapyroxad, furametpyr, isopyrazam, penflufen, penthiopyrad, and sedaxane.

6. The combination as claimed in claim 1, wherein atleast another fungicide is selected from an atleast one of ergosterol biosynthesis inhibitor fungicide, and quinone outside inhibitor fungicide.

7. The combination as claimed in claim 6, wherein the ergosterol biosynthesis inhibitors is selected azaconazole, bitertanol, bromuconazole, cyproconazole, difenoconazole, diniconazole, epoxiconazole, etaconazole, fenbuconazole, fluquinconazole, flusilazole, flutriafol, hexaconazole, imibenconazole, Ipconazole, metconazole, myclobutanil, penconazole, Propiconazole, simeconazole, tebuconazole, tetraconazole, triadimefon, triadimenol, triticonazole, prothioconazole, imazalil, oxpoconazole, pefurazoate, prochloraz, triflumizole, fenarimol, nuarimol, pyrifenox , pyrisoxazole, triforine and mixtures thereof.

8. The combination as claimed in claim 6, wherein the Quinone outside (Qo) inhibitor fungicide is selected from azoxystrobin, coumoxystrobin, enoxastrobin, flufenoxystrobin, picoxystrobin, pyraoxystrobin, mandestrobin, pyraclostrobin, pyrametostrobin, triclopyricarb, kresoxim-methyl, dimoxystrobin, fenaminostrobin, metominostrobin, trifloxystrobin, famoxadone, fluoxastrobin, fenamidone, pyribencarb and mixtures thereof.

9. A fungicidal combination comprising at least one succinate dehydrogenase inhibitor fungicide, at least one dithiocarbamate fungicide and at least two other fungicides.

10. The combination as claimed in claim 1 comprising:
    (a) Mancozeb; and
    (b) Isopyrazam, benzovindiflupyr, penthiopyrad, boscalid, fluindapyr, bixafen, fluxapyroxad, furametpyr, penflufen, or sedaxane; and
    (c) Cyproconazole, difenoconazole, epoxiconazole, hexaconazole, hexaconazole, tebuconazole, tetraconazole, prothioconazole,

azoxystrobin, picoxystrobin, pyraclostrobin, kresoxim-methyl, trifloxystrobin, or combinations thereof.

11. The combination as claimed in claim 1 comprising:

(a) Mancozeb; and

(b) Benzovindiflupyr, isopyrazam, or penthipyrad; and

(c) Prothioconazole and/or azoxystrobin.

12. A composition comprising:

(a) at least one succinate dehydrogenase inhibitor fungicide;

(b) at least one dithiocarbamate fungicide;

(c) at least one ergostrol biosynthesis inhibitor and/or at least one a quinone outside inhibitor; and

(d) at least one agrochemically acceptable excipient.

13. The composition as claimed in claim 12, wherein the composition is formulated into wettable powders, granules, dusts, Soluble (liquid) concentrates, suspension concentrates, oil in water emulsion, water in oil emulsion, emulsifiable concentrates, capsule suspensions, ZC formulations, oil dispersions.

14. The combination as claimed in any one of the preceding claims, wherein the constituent fungicides of the combination are admixed in ratio of (1-80): (1-80): (1-80): (1:80).

15. The combination as claimed in any one of the preceding claims, wherein the total amount of succinate dehydrogenase inhibitor in the composition is in the range of 0.1 to 99% by weight, the total amount of dithiocarbamate

fungicide in the composition is in the range of 0.1 to 99% by weight; the total amount of ergostrol biosynthesis inhibitor in the composition is in the range of 0.1 to 99% by weight; and the total amount of Quinone outside inhibitor in the composition is in the range of 0.1 to 99% by weight.

16. The composition as claimed in any one of the preceding claims, wherein the composition is used for foliar application, or applications to plant propagation materials.

17. A method of controlling fungal diseases comprising applying to the locus of the plant a combination comprising:

(a) at least one succinate dehydrogenase inhibitor fungicide;

(b) at least one quinone outside inhibitor and/or at least one ergostrol biosynthesis inhibitor; and

(c) at least one dithiocarbamate fungicide.

FUNGICIDAL COMBINATIONS

Technical field:

The present invention relates to a combination of fungicides. More specifically, the present invention relates to fungicidal combinations comprising succinate dehydrogenase inhibitor fungicides for controlling a broad spectrum of fungal diseases.

Background of the invention:

Fungicides are an integral and important tool yielded by farmers to control diseases, as well as to improve yields and quality of the crops. There are various fungicides that have been developed over the years with many desirable attributes such as specificity, systemicity, curative and eradicant action and high activity at low use rates.

Succinate dehydrogenase inhibitor (SDHI) fungicides are known in the art to be broad spectrum and have a high potency. Pyrazolecarboxamides are a group of active compounds within the SDHI family of fungicides that are known to be more potent than most other SDHI fungicides. These molecules specifically bind to the ubiquinone-binding site (Q-site) of the mitochondrial complex Ⅱ, thereby inhibiting fungal respiration. These fungicides are known to control a broad spectrum of fungal diseases.

Various other classes of fungicides are also known in the art, such as Quinone outside inhibitors (QoIs), ergosterol-biosynthesis inhibitors, fungicides that act on multiple sites, fungicides that affect mitosis etc. These fungicides have been mixed with SDHI fungicides to achieve a broad spectrum of disease control.

WO2006037632 teaches combinations of SDHI fungicides with a second active compound. WO2013127818 teaches combinations of SDHI fungicides with various herbicides. WO2006037634 teaches methods of controlling fungi using a combination of SDHI fungicide with various fungicides. However, the prior art does not teach the use of ternary or higher combinations of SDHI fungicides.

Dithiocarbamate are known in the art as multi-site fungicides. These fungicides are used for broad-spectrum disease control in more than 70 crops. Mancozeb is especially important for controlling devastating and fast spreading diseases such as *Phytophthora infestans*, *Venturia inaequalis* etc. Dithiocarbamate fungicides, especially mancozeb, are particularly useful for disease control because of their broad spectrum of activity, high tolerance by crop plants, and general usefulness for controlling fungal plant diseases not controlled by active compounds that act on only a single target site in the fungus.

Mancozeb has been combined with various SDHI fungicides for disease control. There is a need in the art to improve on the disease spectrum provided by these combinations.

There is therefore a need in the art for combinations of SDHIs with a specific fungicide that helps improve spectrum. With crop tolerances decreasing, lower use rates being imposed and resistance being increasingly observed, there is a need for a combination of actives that allows for broader disease control spectrum that combines curative and preventive actives and has a lower dosage.

Therefore, embodiments of the present invention may ameliorate one or more of the above mentioned problems:

Therefore, embodiments of the present invention may provide combinations of fungicides that possess an enhanced efficacy over the individual fungicides used in isolation.

Another object of the present invention is to provide a fungicidal combination that causes an enhanced greening of the crops to which it is administered.

Another object of the present invention is to provide a fungicidal combination that causes late senescence to the crop to which it is applied thereby resulting into an increasing yield of the crop.

Yet another object of the present invention is to provide a fungicidal combination that results into reduced fungal disease incidence in the crops to which it is applied.

Another object of the present invention is to provide a fungicidal combination that achieves increased yield in the crops to which it is applied.

Some or all these and other objects of the invention are can be achieved by way of the invention described hereinafter.

Summary of the invention:

Thus, an aspect of the present invention can provide a fungicidal combination comprising at least one succinate dehydrogenase inhibitor fungicide, at least one dithiocarbamate fungicide, and at least another fungicide.

Another aspect of the present invention can provide a fungicidal combination comprising at least one succinate dehydrogenase inhibitor fungicide, at least one dithiocarbamate fungicide and at least two other fungicides.

Another aspect of the present invention can provide synergistic compositions comprising at least one succinate dehydrogenase inhibitor fungicide, at least one dithiocarbamate fungicide, and at least one other fungicide.

Another aspect of the present invention can provide synergistic compositions comprising at least one succinate dehydrogenase inhibitor fungicide, at least one dithiocarbamate fungicide and at least two other fungicides.

Detailed Description:

The term "disease control" as used herein denotes control and prevention of a disease. Controlling effects include all deviation from natural development, for example: killing, retardation, decrease of the fugal disease. The term "plants" refers to all physical parts of a plant, including seeds, seedlings, saplings, roots, tubers, stems, stalks, foliage and fruits. The term "locus" of a plant as used herein is intended to embrace the place on which the plants are growing, where the plant propagation materials of the plants are sown or where the plant propagation materials of the plants will be placed into the soil. The term "plant propagation material" is understood to denote generative parts of a plant, such as seeds, vegetative material such as cuttings or tubers, roots, fruits, tubers, bulbs, rhizomes and parts of plants, germinated plants and young plants which are to be transplanted after germination or after emergence from the soil. These young plants may be protected before transplantation by a total or partial treatment by immersion. The term "agriculturally acceptable amount of active" refers to an

amount of an active that kills or inhibits the plant disease for which control is desired, in an amount not significantly toxic to the plant being treated.

Succinate dehydrogenase inhibitor (SDHI) fungicides play an important role in plant protection against many phytopathogenic fungi. These molecules specifically bind to the ubiquinone-binding site (Q-site) of the mitochondrial complex II, thereby inhibiting fungal respiration. Dithiocarbamate are multi-site contact fungicides. These molecules attack multiple sites within the fugal cells.

It has surprisingly been found that the addition of a dithiocarbamate fungicide to the combinations of succinate dehydrogenase inhibitors with at least another fungicide selected from an ergosterol biosynthesis inhibitors or Quinone outside inhibitors or a combination thereof, resulted in surprising and unexpected advantages. It was surprising that the addition of a dithiocarbamate fungicide to the combination of a succinate dehydrogenase inhibitor with at least another fungicide selected from an ergosterol biosynthesis inhibitors and/or Quinone outside inhibitors or a combination thereof resulted in an enhancement of the efficacy, and a surprising reduction in fungal disease incidence, seen only with the combination of succinate dehydrogenase inhibitors with at least another fungicide selected from an ergosterol biosynthesis inhibitors or Quinone outside inhibitors or a combination thereof. It has further been found that the addition of a dithiocarbamate fungicide to these combinations and application of these combinations during the flowering stage of the crop delayed the senescence in the crop to which they were applied, which led to better greening in the crop thereby increasing the level of photosynthesis occurring within the plant, thereby leading to a greater yield from the crop to which they were applied.

These surprising advantages of the combinations of the invention were not observed when the dithiocarbamate fungicide was not present in the combination. Therefore, these unexpected advantages of the combination of the present invention could be attributed to the inclusion of a dithiocarbamate fungicide to the combination of a succinate dehydrogenase inhibitor with at least another fungicide selected from an ergosterol biosynthesis inhibitors and/or Quinone outside inhibitors or a combination thereof.

Thus, in an aspect, the present invention provides a fungicidal combination comprising:

(a) at least one dithiocarbamate fungicide;

(b) at least one succinate dehydrogenase inhibitor fungicide; and

(c) at least another fungicide selected from an ergosterol biosynthesis inhibitors and/or Quinone outside inhibitors.

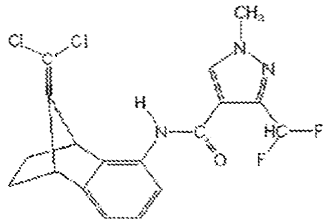
In an embodiment, the dithiocarbamate fungicide is selected from the group consisting of amobam, asomate, azithiram, carbamorph, cufraneb, cuprobam, disulfiram, ferbam, metam, nabam, tecoram, thiram, urbacide, ziram, dazomet, etem, milneb, mancopper, mancozeb, maneb, metiram, polycarbamate, propineb and zineb.

In an embodiment, the preferred dithiocarbamate fungicide is mancozeb.

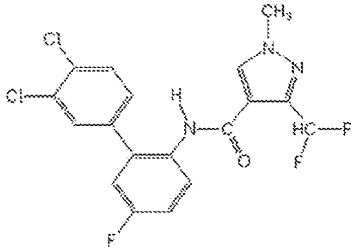
In an embodiment, the succinate dehydrogenase inhibitor is selected from pyrazole carboxamide class of succinate dehydrogenase inhibitor fungicides. However, it should be understood that the choice of succinate dehydrogenase inhibitors is not understood to be limited to these pyrazole carboxamide fungicides alone.

In an embodiment, the pyrazole carboxamide class of succinate dehydrogenase inhibitor fungicide may be selected from benzovindiflupyr, bixafen, fluxapyroxad, furametpyr, isopyrazam, penflufen, penthiopyrad, and sedaxane.

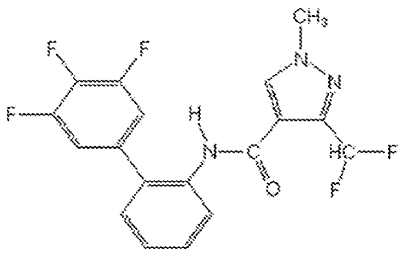
Benzovindiflupyr has the chemical name *N*-[(1*RS*,4*SR*)-9-(dichloromethylene)-1,2,3,4-tetrahydro-1,4-methanonaphthalen-5-yl]-3-(difluoromethyl)-1-methylpyrazole-4-carboxamide and has the structure:



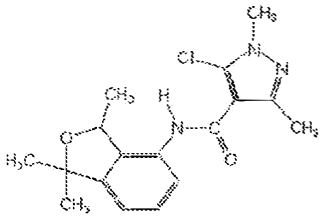
Bixafen has the chemical name *N*-(3',4'-dichloro-5-fluorobiphenyl-2-yl)-3-(difluoromethyl)-1-methylpyrazole-4-carboxamide and the structure:



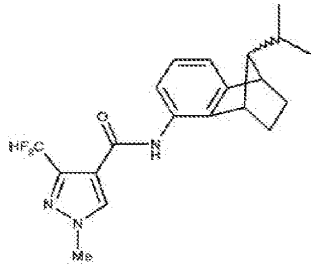
Fluxapyroxad has the chemical name 3-(difluoromethyl)-1-methyl-*N*-(3',4',5'-trifluorobiphenyl-2-yl)pyrazole-4-carboxamide and has the structure:



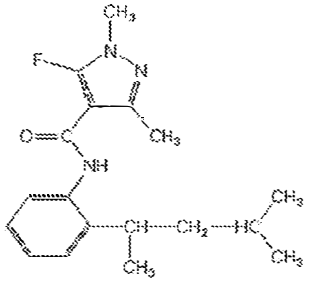
Furametpyr has the chemical name (*RS*)-5-chloro-*N*-(1,3-dihydro-1,1,3-trimethylisobenzofuran-4-yl)-1,3-dimethylpyrazole-4-carboxamide and has the structure:



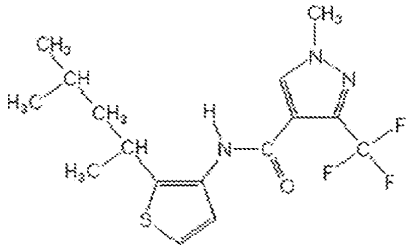
Isopyrazam is a mixture of 2 isomers 3-(difluoromethyl)-1-methyl-*N*-[(1*RS*,4*SR*,9*RS*)-1,2,3,4-tetrahydro-9-isopropyl-1,4-methanonaphthalen-5-yl]pyrazole-4-carboxamide and 2 aisomers 3-(difluoromethyl)-1-methyl-*N*-[(1*RS*,4*SR*,9*SR*)-1,2,3,4-tetrahydro-9-isopropyl-1,4-methanonaphthalen-5-yl]pyrazole-4-carboxamide and its tautomer's have the structure:



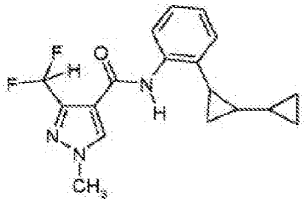
Penflufen has the chemical name *N*-[2-(1,3-dimethylbutyl)phenyl]-5-fluoro-1,3-dimethyl-1*H*-pyrazole-4-carboxamide, and has the following structure:



Penthiopyrad has the chemical name (*RS*)-*N*-[2-(1,3-dimethylbutyl)-3-thienyl]-1-methyl-3-(trifluoromethyl)pyrazole-4-carboxamide, and has the following structure:



Sedaxane is a mixture of 2 cis-isomers 2'-[(1*RS*,2*RS*)-1,1'-bicycloprop-2-yl]-3-(difluoromethyl)-1-methylpyrazole-4-carboxanilide and 2 trans-isomers 2'-[(1*RS*,2*SR*)-1,1'-bicycloprop-2-yl]-3-(difluoromethyl)-1-methylpyrazole-4-carboxanilide , and its tautomer's have the structure:



In an embodiment, the succinate dehydrogenase inhibitor fungicide may be selected from the group consisting of benodanil, flutolanil, mepronil, isofetamid, fluopyram, fenfuram, carboxin, oxycarboxin, thifluzamide, boscalid and IR9792.

In an embodiment, the third and/or fourth fungicides in the combinations of the present invention may be selected from ergosterol biosynthesis inhibitors, and/or Quinone outside (Qo) inhibitors or mixtures thereof.

Thus in an embodiment, the ergosterol biosynthesis inhibitors may be selected from the group consisting of azaconazole, bitertanol, bromuconazole, cyproconazole, difenoconazole, diniconazole, epoxiconazole, etaconazole, fenbuconazole, fluquinconazole, flusilazole, flutriafol, hexaconazole, imibenconazole, Ipconazole, metconazole, myclobutanil, penconazole, Propiconazole, simeconazole, tebuconazole, tetraconazole, triadimefon, triadimenol, triticonazole, prothioconazole, imazalil, oxpoconazole, pefurazoate, prochloraz, triflumizole, fenarimol, nuarimol, pyrifenox , pyrisoxazole, triforine and mixtures thereof.

In another embodiment, the ergosterol biosynthesis inhibitors may be selected from prothioconazole, tebuconazole, hexaconazole, cyroconazole or epoxiconazole.

In an embodiment, the third fungicide may be a Quinone outside (Qo) inhibitor fungicide selected from azoxystrobin, coumoxystrobin, enoxastrobin, flufenoxystrobin, picoxystrobin, pyraoxystrobin, mandestrobin, pyraclostrobin, pyrametostrobin, triclopyricarb, kresoxim-methyl, dimoxystrobin, fenaminostrobin,

metominostrobin, trifloxystrobin, famoxadone, fluoxastrobin, fenamidone, pyribencarb and mixtures thereof.

In an embodiment, the Quinone outside (Qo) inhibitor fungicide may be selected from azoxystrobin, picoxystrobin, kresoxim-methyl, pyraclostrobin and trifloxystrobin.

In an embodiment of the combinations of the present invention, the preferred succinate dehydrogenase inhibitor fungicide is isopyrazam.

In an embodiment, the combinations of the present invention include the following preferred combinations:

S No.	I	II	III	IV
1	Mancozeb	Isopyrazam	Cyproconazole	-
2	Mancozeb	Isopyrazam	Difenoconazole	-
3	Mancozeb	Isopyrazam	Epoxiconazole	-
4	Mancozeb	Isopyrazam	Hexaconazole	-
5	Mancozeb	Isopyrazam	Tebuconazole	-
6	Mancozeb	Isopyrazam	Tetraconazole	-
7	Mancozeb	Isopyrazam	Prothioconazole	-
8	Mancozeb	Isopyrazam	-	Azoxystrobin
9	Mancozeb	Isopyrazam	-	Picoxystrobin
10	Mancozeb	Isopyrazam	-	Pyraclostrobin
11	Mancozeb	Isopyrazam	-	Kresoxim-methyl
12	Mancozeb	Isopyrazam	-	Trifloxystrobin

13	Mancozeb	Isopyrazam	Cyproconazole	Azoxystrobin
14	Mancozeb	Isopyrazam	Cyproconazole	Picoxystrobin
15	Mancozeb	Isopyrazam	Cyproconazole	Pyraclostrobin
16	Mancozeb	Isopyrazam	Cyproconazole	Kresoxim-methyl
17	Mancozeb	Isopyrazam	Cyproconazole	Trifloxystrobin
18	Mancozeb	Isopyrazam	Difenoconazole	Azoxystrobin
19	Mancozeb	Isopyrazam	Difenoconazole	Picoxystrobin
20	Mancozeb	Isopyrazam	Difenoconazole	Pyraclostrobin
21	Mancozeb	Isopyrazam	Difenoconazole	Kresoxim-methyl
22	Mancozeb	Isopyrazam	Difenoconazole	Trifloxystrobin
23	Mancozeb	Isopyrazam	Epoxiconazole	Azoxystrobin
24	Mancozeb	Isopyrazam	Epoxiconazole	Picoxystrobin
25	Mancozeb	Isopyrazam	Epoxiconazole	Pyraclostrobin
26	Mancozeb	Isopyrazam	Epoxiconazole	Kresoxim-methyl
27	Mancozeb	Isopyrazam	Epoxiconazole	Trifloxystrobin
28	Mancozeb	Isopyrazam	Hexaconazole	Azoxystrobin
29	Mancozeb	Isopyrazam	Hexaconazole	Picoxystrobin
30	Mancozeb	Isopyrazam	Hexaconazole	Pyraclostrobin
31	Mancozeb	Isopyrazam	Hexaconazole	Kresoxim-methyl
32	Mancozeb	Isopyrazam	Hexaconazole	Trifloxystrobin
33	Mancozeb	Isopyrazam	Tebuconazole	Azoxystrobin
34	Mancozeb	Isopyrazam	Tebuconazole	Picoxystrobin

35	Mancozeb	Isopyrazam	Tebuconazole	Pyraclostrobin
36	Mancozeb	Isopyrazam	Tebuconazole	Kresoxim-methyl
37	Mancozeb	Isopyrazam	Tebuconazole	Trifloxystrobin
38	Mancozeb	Isopyrazam	Tetraconazole	Azoxystrobin
39	Mancozeb	Isopyrazam	Tetraconazole	Picoxystrobin
40	Mancozeb	Isopyrazam	Tetraconazole	Pyraclostrobin
41	Mancozeb	Isopyrazam	Tetraconazole	Kresoxim-methyl
42	Mancozeb	Isopyrazam	Tetraconazole	Trifloxystrobin
43	Mancozeb	Isopyrazam	Prothioconazole	Azoxystrobin
44	Mancozeb	Isopyrazam	Prothioconazole	Picoxystrobin
45	Mancozeb	Isopyrazam	Prothioconazole	Pyraclostrobin
46	Mancozeb	Isopyrazam	Prothioconazole	Kresoxim-methyl
47	Mancozeb	Isopyrazam	Prothioconazole	Trifloxystrobin

In an embodiment of the combinations of the present invention, the preferred succinate dehydrogenase inhibitor fungicide is Benzovindiflupyr.

In an embodiment, the combinations of the present invention include the following preferred combinations:

S No.	I	II	III	IV
48	Mancozeb	Benzovindiflupyr	Cyproconazole	-
49	Mancozeb	Benzovindiflupyr	Difenoconazole	-
50	Mancozeb	Benzovindiflupyr	Epoxiconazole	-

51	Mancozeb	Benzovindiflupyr	Hexaconazole	-
52	Mancozeb	Benzovindiflupyr	Tebuconazole	-
53	Mancozeb	Benzovindiflupyr	Tetraconazole	-
54	Mancozeb	Benzovindiflupyr	Prothioconazole	-
55	Mancozeb	Benzovindiflupyr	-	Azoxystrobin
56	Mancozeb	Benzovindiflupyr	-	Picoxystrobin
57	Mancozeb	Benzovindiflupyr	-	Pyraclostrobin
58	Mancozeb	Benzovindiflupyr	-	Kresoxim-methyl
59	Mancozeb	Benzovindiflupyr	-	Trifloxystrobin
60	Mancozeb	Benzovindiflupyr	Cyproconazole	Azoxystrobin
61	Mancozeb	Benzovindiflupyr	Cyproconazole	Picoxystrobin
62	Mancozeb	Benzovindiflupyr	Cyproconazole	Pyraclostrobin
63	Mancozeb	Benzovindiflupyr	Cyproconazole	Kresoxim-methyl
64	Mancozeb	Benzovindiflupyr	Cyproconazole	Trifloxystrobin
65	Mancozeb	Benzovindiflupyr	Difenoconazole	Azoxystrobin
66	Mancozeb	Benzovindiflupyr	Difenoconazole	Picoxystrobin
67	Mancozeb	Benzovindiflupyr	Difenoconazole	Pyraclostrobin
68	Mancozeb	Benzovindiflupyr	Difenoconazole	Kresoxim-methyl
69	Mancozeb	Benzovindiflupyr	Difenoconazole	Trifloxystrobin
70	Mancozeb	Benzovindiflupyr	Epoxiconazole	Azoxystrobin
71	Mancozeb	Benzovindiflupyr	Epoxiconazole	Picoxystrobin
72	Mancozeb	Benzovindiflupyr	Epoxiconazole	Pyraclostrobin

73	Mancozeb	Benzovindiflupyr	Epoxiconazole	Kresoxim-methyl
74	Mancozeb	Benzovindiflupyr	Epoxiconazole	Trifloxystrobin
75	Mancozeb	Benzovindiflupyr	Hexaconazole	Azoxystrobin
76	Mancozeb	Benzovindiflupyr	Hexaconazole	Picoxystrobin
77	Mancozeb	Benzovindiflupyr	Hexaconazole	Pyraclostrobin
78	Mancozeb	Benzovindiflupyr	Hexaconazole	Kresoxim-methyl
79	Mancozeb	Benzovindiflupyr	Hexaconazole	Trifloxystrobin
80	Mancozeb	Benzovindiflupyr	Tebuconazole	Azoxystrobin
81	Mancozeb	Benzovindiflupyr	Tebuconazole	Picoxystrobin
82	Mancozeb	Benzovindiflupyr	Tebuconazole	Pyraclostrobin
83	Mancozeb	Benzovindiflupyr	Tebuconazole	Kresoxim-methyl
84	Mancozeb	Benzovindiflupyr	Tebuconazole	Trifloxystrobin
85	Mancozeb	Benzovindiflupyr	Tetraconazole	Azoxystrobin
86	Mancozeb	Benzovindiflupyr	Tetraconazole	Picoxystrobin
87	Mancozeb	Benzovindiflupyr	Tetraconazole	Pyraclostrobin
88	Mancozeb	Benzovindiflupyr	Tetraconazole	Kresoxim-methyl
89	Mancozeb	Benzovindiflupyr	Tetraconazole	Trifloxystrobin
90	Mancozeb	Benzovindiflupyr	Prothioconazole	Azoxystrobin
91	Mancozeb	Benzovindiflupyr	Prothioconazole	Picoxystrobin
92	Mancozeb	Benzovindiflupyr	Prothioconazole	Pyraclostrobin
93	Mancozeb	Benzovindiflupyr	Prothioconazole	Kresoxim-methyl

94	Mancozeb	Benzovindiflupyr	Prothioconazole	Trifloxystrobin

In an embodiment of the combinations of the present invention, the preferred succinate dehydrogenase inhibitor fungicide is Penthiopyrad.

In an embodiment, the combinations of the present invention include the following preferred combinations:

S No.	I	II	III	IV
95	Mancozeb	Penthiopyrad	Cyproconazole	-
96	Mancozeb	Penthiopyrad	Difenoconazole	-
97	Mancozeb	Penthiopyrad	Epoxiconazole	-
98	Mancozeb	Penthiopyrad	Hexaconazole	-
99	Mancozeb	Penthiopyrad	Tebuconazole	-
100	Mancozeb	Penthiopyrad	Tetraconazole	-
101	Mancozeb	Penthiopyrad	Prothioconazole	-
102	Mancozeb	Penthiopyrad	-	Azoxystrobin
103	Mancozeb	Penthiopyrad	-	Picoxystrobin
104	Mancozeb	Penthiopyrad	-	Pyraclostrobin
105	Mancozeb	Penthiopyrad	-	Kresoxim-methyl
106	Mancozeb	Penthiopyrad	-	Trifloxystrobin
107	Mancozeb	Penthiopyrad	Cyproconazole	Azoxystrobin
108	Mancozeb	Penthiopyrad	Cyproconazole	Picoxystrobin
109	Mancozeb	Penthiopyrad	Cyproconazole	Pyraclostrobin
110	Mancozeb	Penthiopyrad	Cyproconazole	Kresoxim-methyl

111	Mancozeb	Penthiopyrad	Cyproconazole	Trifloxystrobin
112	Mancozeb	Penthiopyrad	Difenoconazole	Azoxystrobin
113	Mancozeb	Penthiopyrad	Difenoconazole	Picoxystrobin
114	Mancozeb	Penthiopyrad	Difenoconazole	Pyraclostrobin
115	Mancozeb	Penthiopyrad	Difenoconazole	Kresoxim-methyl
116	Mancozeb	Penthiopyrad	Difenoconazole	Trifloxystrobin
117	Mancozeb	Penthiopyrad	Epoxiconazole	Azoxystrobin
118	Mancozeb	Penthiopyrad	Epoxiconazole	Picoxystrobin
119	Mancozeb	Penthiopyrad	Epoxiconazole	Pyraclostrobin
120	Mancozeb	Penthiopyrad	Epoxiconazole	Kresoxim-methyl
121	Mancozeb	Penthiopyrad	Epoxiconazole	Trifloxystrobin
122	Mancozeb	Penthiopyrad	Hexaconazole	Azoxystrobin
123	Mancozeb	Penthiopyrad	Hexaconazole	Picoxystrobin
124	Mancozeb	Penthiopyrad	Hexaconazole	Pyraclostrobin
125	Mancozeb	Penthiopyrad	Hexaconazole	Kresoxim-methyl
126	Mancozeb	Penthiopyrad	Hexaconazole	Trifloxystrobin
127	Mancozeb	Penthiopyrad	Tebuconazole	Azoxystrobin
128	Mancozeb	Penthiopyrad	Tebuconazole	Picoxystrobin
129	Mancozeb	Penthiopyrad	Tebuconazole	Pyraclostrobin
130	Mancozeb	Penthiopyrad	Tebuconazole	Kresoxim-methyl
131	Mancozeb	Penthiopyrad	Tebuconazole	Trifloxystrobin
132	Mancozeb	Penthiopyrad	Tetraconazole	Azoxystrobin

133	Mancozeb	Penthiopyrad	Tetraconazole	Picoxystrobin
134	Mancozeb	Penthiopyrad	Tetraconazole	Pyraclostrobin
135	Mancozeb	Penthiopyrad	Tetraconazole	Kresoxim-methyl
136	Mancozeb	Penthiopyrad	Tetraconazole	Trifloxystrobin
137	Mancozeb	Penthiopyrad	Prothioconazole	Azoxystrobin
138	Mancozeb	Penthiopyrad	Prothioconazole	Picoxystrobin
139	Mancozeb	Penthiopyrad	Prothioconazole	Pyraclostrobin
140	Mancozeb	Penthiopyrad	Prothioconazole	Kresoxim-methyl
141	Mancozeb	Penthiopyrad	Prothioconazole	Trifloxystrobin

In an embodiment of the combinations of the present invention, the preferred succinate dehydrogenase inhibitor fungicide is boscalid.

In an embodiment, the combinations of the present invention include the following preferred combinations:

S No.	I	II	III	IV
142	Mancozeb	Boscalid	Cyproconazole	-
143	Mancozeb	Boscalid	Difenoconazole	-
144	Mancozeb	Boscalid	Epoxiconazole	-
145	Mancozeb	Boscalid	Hexaconazole	-
146	Mancozeb	Boscalid	Tebuconazole	-
147	Mancozeb	Boscalid	Tetraconazole	-
148	Mancozeb	Boscalid	Prothioconazole	-
149	Mancozeb	Boscalid	-	Azoxystrobin

150	Mancozeb	Boscalid	-	Picoxystrobin
151	Mancozeb	Boscalid	-	Pyraclostrobin
152	Mancozeb	Boscalid	-	Kresoxim-methyl
153	Mancozeb	Boscalid	-	Trifloxystrobin
154	Mancozeb	Boscalid	Cyproconazole	Azoxystrobin
155	Mancozeb	Boscalid	Cyproconazole	Picoxystrobin
156	Mancozeb	Boscalid	Cyproconazole	Pyraclostrobin
157	Mancozeb	Boscalid	Cyproconazole	Kresoxim-methyl
158	Mancozeb	Boscalid	Cyproconazole	Trifloxystrobin
159	Mancozeb	Boscalid	Difenoconazole	Azoxystrobin
160	Mancozeb	Boscalid	Difenoconazole	Picoxystrobin
161	Mancozeb	Boscalid	Difenoconazole	Pyraclostrobin
162	Mancozeb	Boscalid	Difenoconazole	Kresoxim-methyl
163	Mancozeb	Boscalid	Difenoconazole	Trifloxystrobin
164	Mancozeb	Boscalid	Epoxiconazole	Azoxystrobin
165	Mancozeb	Boscalid	Epoxiconazole	Picoxystrobin
166	Mancozeb	Boscalid	Epoxiconazole	Pyraclostrobin
167	Mancozeb	Boscalid	Epoxiconazole	Kresoxim-methyl
168	Mancozeb	Boscalid	Epoxiconazole	Trifloxystrobin
169	Mancozeb	Boscalid	Hexaconazole	Azoxystrobin
170	Mancozeb	Boscalid	Hexaconazole	Picoxystrobin
171	Mancozeb	Boscalid	Hexaconazole	Pyraclostrobin

172	Mancozeb	Boscalid	Hexaconazole	Kresoxim-methyl
173	Mancozeb	Boscalid	Hexaconazole	Trifloxystrobin
174	Mancozeb	Boscalid	Tebuconazole	Azoxystrobin
175	Mancozeb	Boscalid	Tebuconazole	Picoxystrobin
176	Mancozeb	Boscalid	Tebuconazole	Pyraclostrobin
177	Mancozeb	Boscalid	Tebuconazole	Kresoxim-methyl
178	Mancozeb	Boscalid	Tebuconazole	Trifloxystrobin
179	Mancozeb	Boscalid	Tetraconazole	Azoxystrobin
180	Mancozeb	Boscalid	Tetraconazole	Picoxystrobin
181	Mancozeb	Boscalid	Tetraconazole	Pyraclostrobin
182	Mancozeb	Boscalid	Tetraconazole	Kresoxim-methyl
183	Mancozeb	Boscalid	Tetraconazole	Trifloxystrobin
184	Mancozeb	Boscalid	Prothioconazole	Azoxystrobin
185	Mancozeb	Boscalid	Prothioconazole	Picoxystrobin
186	Mancozeb	Boscalid	Prothioconazole	Pyraclostrobin
187	Mancozeb	Boscalid	Prothioconazole	Kresoxim-methyl
188	Mancozeb	Boscalid	Prothioconazole	Trifloxystrobin

In an embodiment of the combinations of the present invention, the preferred succinate dehydrogenase inhibitor fungicide is IR9792. IR9792 is a SDHI fungicide, developed by Isagro, with the proposed common name fluindapyr.

In an embodiment, the combinations of the present invention include the following preferred combinations:

S No.	I	II	III	IV
189	Mancozeb	IR9792	Cyproconazole	-
190	Mancozeb	IR9792	Difenoconazole	-
191	Mancozeb	IR9792	Epoxiconazole	-
192	Mancozeb	IR9792	Hexaconazole	-
193	Mancozeb	IR9792	Tebuconazole	-
194	Mancozeb	IR9792	Tetraconazole	-
195	Mancozeb	IR9792	Prothioconazole	-
196	Mancozeb	IR9792	-	Azoxystrobin
197	Mancozeb	IR9792	-	Picoxystrobin
198	Mancozeb	IR9792	-	Pyraclostrobin
199	Mancozeb	IR9792	-	Kresoxim-methyl
200	Mancozeb	IR9792	-	Trifloxystrobin
201	Mancozeb	IR9792	Cyproconazole	Azoxystrobin
202	Mancozeb	IR9792	Cyproconazole	Picoxystrobin
203	Mancozeb	IR9792	Cyproconazole	Pyraclostrobin
204	Mancozeb	IR9792	Cyproconazole	Kresoxim-methyl
205	Mancozeb	IR9792	Cyproconazole	Trifloxystrobin
206	Mancozeb	IR9792	Difenoconazole	Azoxystrobin
207	Mancozeb	IR9792	Difenoconazole	Picoxystrobin
208	Mancozeb	IR9792	Difenoconazole	Pyraclostrobin

209	Mancozeb	IR9792	Difenoconazole	Kresoxim-methyl
210	Mancozeb	IR9792	Difenoconazole	Trifloxystrobin
211	Mancozeb	IR9792	Epoxiconazole	Azoxystrobin
212	Mancozeb	IR9792	Epoxiconazole	Picoxystrobin
213	Mancozeb	IR9792	Epoxiconazole	Pyraclostrobin
214	Mancozeb	IR9792	Epoxiconazole	Kresoxim-methyl
215	Mancozeb	IR9792	Epoxiconazole	Trifloxystrobin
216	Mancozeb	IR9792	Hexaconazole	Azoxystrobin
217	Mancozeb	IR9792	Hexaconazole	Picoxystrobin
218	Mancozeb	IR9792	Hexaconazole	Pyraclostrobin
219	Mancozeb	IR9792	Hexaconazole	Kresoxim-methyl
220	Mancozeb	IR9792	Hexaconazole	Trifloxystrobin
221	Mancozeb	IR9792	Tebuconazole	Azoxystrobin
222	Mancozeb	IR9792	Tebuconazole	Picoxystrobin
223	Mancozeb	IR9792	Tebuconazole	Pyraclostrobin
224	Mancozeb	IR9792	Tebuconazole	Kresoxim-methyl
225	Mancozeb	IR9792	Tebuconazole	Trifloxystrobin
226	Mancozeb	IR9792	Tetraconazole	Azoxystrobin
227	Mancozeb	IR9792	Tetraconazole	Picoxystrobin
228	Mancozeb	IR9792	Tetraconazole	Pyraclostrobin
229	Mancozeb	IR9792	Tetraconazole	Kresoxim-methyl

230	Mancozeb	IR9792	Tetraconazole	Trifloxystrobin
231	Mancozeb	IR9792	Prothioconazole	Azoxystrobin
232	Mancozeb	IR9792	Prothioconazole	Picoxystrobin
233	Mancozeb	IR9792	Prothioconazole	Pyraclostrobin
234	Mancozeb	IR9792	Prothioconazole	Kresoxim-methyl
235	Mancozeb	IR9792	Prothioconazole	Trifloxystrobin

In an embodiment of the combinations of the present invention, the preferred succinate dehydrogenase inhibitor fungicide is Bixafen.

In an embodiment, the combinations of the present invention include the following preferred combinations:

S No.	I	II	III	IV
236	Mancozeb	Bixafen	Cyproconazole	-
237	Mancozeb	Bixafen	Difenoconazole	-
238	Mancozeb	Bixafen	Epoxiconazole	-
239	Mancozeb	Bixafen	Hexaconazole	-
240	Mancozeb	Bixafen	Tebuconazole	-
241	Mancozeb	Bixafen	Tetraconazole	-
242	Mancozeb	Bixafen	Prothioconazole	-
243	Mancozeb	Bixafen	-	Azoxystrobin
244	Mancozeb	Bixafen	-	Picoxystrobin
245	Mancozeb	Bixafen	-	Pyraclostrobin
246	Mancozeb	Bixafen	-	Kresoxim-methyl

247	Mancozeb	Bixafen	-	Trifloxystrobin
248	Mancozeb	Bixafen	Cyproconazole	Azoxystrobin
249	Mancozeb	Bixafen	Cyproconazole	Picoxystrobin
250	Mancozeb	Bixafen	Cyproconazole	Pyraclostrobin
251	Mancozeb	Bixafen	Cyproconazole	Kresoxim-methyl
252	Mancozeb	Bixafen	Cyproconazole	Trifloxystrobin
253	Mancozeb	Bixafen	Difenoconazole	Azoxystrobin
254	Mancozeb	Bixafen	Difenoconazole	Picoxystrobin
255	Mancozeb	Bixafen	Difenoconazole	Pyraclostrobin
256	Mancozeb	Bixafen	Difenoconazole	Kresoxim-methyl
257	Mancozeb	Bixafen	Difenoconazole	Trifloxystrobin
258	Mancozeb	Bixafen	Epoxiconazole	Azoxystrobin
259	Mancozeb	Bixafen	Epoxiconazole	Picoxystrobin
260	Mancozeb	Bixafen	Epoxiconazole	Pyraclostrobin
261	Mancozeb	Bixafen	Epoxiconazole	Kresoxim-methyl
262	Mancozeb	Bixafen	Epoxiconazole	Trifloxystrobin
263	Mancozeb	Bixafen	Hexaconazole	Azoxystrobin
264	Mancozeb	Bixafen	Hexaconazole	Picoxystrobin
265	Mancozeb	Bixafen	Hexaconazole	Pyraclostrobin
266	Mancozeb	Bixafen	Hexaconazole	Kresoxim-methyl
267	Mancozeb	Bixafen	Hexaconazole	Trifloxystrobin
268	Mancozeb	Bixafen	Tebuconazole	Azoxystrobin

269	Mancozeb	Bixafen	Tebuconazole	Picoxystrobin
270	Mancozeb	Bixafen	Tebuconazole	Pyraclostrobin
271	Mancozeb	Bixafen	Tebuconazole	Kresoxim-methyl
272	Mancozeb	Bixafen	Tebuconazole	Trifloxystrobin
273	Mancozeb	Bixafen	Tetraconazole	Azoxystrobin
274	Mancozeb	Bixafen	Tetraconazole	Picoxystrobin
275	Mancozeb	Bixafen	Tetraconazole	Pyraclostrobin
276	Mancozeb	Bixafen	Tetraconazole	Kresoxim-methyl
277	Mancozeb	Bixafen	Tetraconazole	Trifloxystrobin
278	Mancozeb	Bixafen	Prothioconazole	Azoxystrobin
279	Mancozeb	Bixafen	Prothioconazole	Picoxystrobin
280	Mancozeb	Bixafen	Prothioconazole	Pyraclostrobin
281	Mancozeb	Bixafen	Prothioconazole	Kresoxim-methyl
282	Mancozeb	Bixafen	Prothioconazole	Trifloxystrobin

In an embodiment of the combinations of the present invention, the preferred succinate dehydrogenase inhibitor fungicide is Fluxapyroxad.

In an embodiment, the combinations of the present invention include the following preferred combinations:

S No.	I	II	III	IV
283	Mancozeb	Fluxapyroxad	Cyproconazole	-
284	Mancozeb	Fluxapyroxad	Difenoconazole	-

285	Mancozeb	Fluxapyroxad	Epoxiconazole	-
286	Mancozeb	Fluxapyroxad	Hexaconazole	-
287	Mancozeb	Fluxapyroxad	Tebuconazole	-
288	Mancozeb	Fluxapyroxad	Tetraconazole	-
289	Mancozeb	Fluxapyroxad	Prothioconazole	-
290	Mancozeb	Fluxapyroxad	-	Azoxystrobin
291	Mancozeb	Fluxapyroxad	-	Picoxystrobin
292	Mancozeb	Fluxapyroxad	-	Pyraclostrobin
293	Mancozeb	Fluxapyroxad	-	Kresoxim-methyl
294	Mancozeb	Fluxapyroxad	-	Trifloxystrobin
295	Mancozeb	Fluxapyroxad	Cyproconazole	Azoxystrobin
296	Mancozeb	Fluxapyroxad	Cyproconazole	Picoxystrobin
297	Mancozeb	Fluxapyroxad	Cyproconazole	Pyraclostrobin
298	Mancozeb	Fluxapyroxad	Cyproconazole	Kresoxim-methyl
299	Mancozeb	Fluxapyroxad	Cyproconazole	Trifloxystrobin
300	Mancozeb	Fluxapyroxad	Difenoconazole	Azoxystrobin
301	Mancozeb	Fluxapyroxad	Difenoconazole	Picoxystrobin
302	Mancozeb	Fluxapyroxad	Difenoconazole	Pyraclostrobin
303	Mancozeb	Fluxapyroxad	Difenoconazole	Kresoxim-methyl
304	Mancozeb	Fluxapyroxad	Difenoconazole	Trifloxystrobin
305	Mancozeb	Fluxapyroxad	Epoxiconazole	Azoxystrobin
306	Mancozeb	Fluxapyroxad	Epoxiconazole	Picoxystrobin
307	Mancozeb	Fluxapyroxad	Epoxiconazole	Pyraclostrobin

308	Mancozeb	Fluxapyroxad	Epoxiconazole	Kresoxim-methyl
309	Mancozeb	Fluxapyroxad	Epoxiconazole	Trifloxystrobin
310	Mancozeb	Fluxapyroxad	Hexaconazole	Azoxystrobin
311	Mancozeb	Fluxapyroxad	Hexaconazole	Picoxystrobin
312	Mancozeb	Fluxapyroxad	Hexaconazole	Pyraclostrobin
313	Mancozeb	Fluxapyroxad	Hexaconazole	Kresoxim-methyl
314	Mancozeb	Fluxapyroxad	Hexaconazole	Trifloxystrobin
315	Mancozeb	Fluxapyroxad	Tebuconazole	Azoxystrobin
316	Mancozeb	Fluxapyroxad	Tebuconazole	Picoxystrobin
317	Mancozeb	Fluxapyroxad	Tebuconazole	Pyraclostrobin
318	Mancozeb	Fluxapyroxad	Tebuconazole	Kresoxim-methyl
319	Mancozeb	Fluxapyroxad	Tebuconazole	Trifloxystrobin
320	Mancozeb	Fluxapyroxad	Tetraconazole	Azoxystrobin
321	Mancozeb	Fluxapyroxad	Tetraconazole	Picoxystrobin
322	Mancozeb	Fluxapyroxad	Tetraconazole	Pyraclostrobin
323	Mancozeb	Fluxapyroxad	Tetraconazole	Kresoxim-methyl
324	Mancozeb	Fluxapyroxad	Tetraconazole	Trifloxystrobin
325	Mancozeb	Fluxapyroxad	Prothioconazole	Azoxystrobin
326	Mancozeb	Fluxapyroxad	Prothioconazole	Picoxystrobin
327	Mancozeb	Fluxapyroxad	Prothioconazole	Pyraclostrobin
328	Mancozeb	Fluxapyroxad	Prothioconazole	Kresoxim-methyl

329	Mancozeb	Fluxapyroxad	Prothioconazole	Trifloxystrobin

In an embodiment of the combinations of the present invention, the preferred succinate dehydrogenase inhibitor fungicide is Furametpyr.

In an embodiment, the combinations of the present invention include the following preferred combinations:

S No.	I	II	III	IV
330	Mancozeb	Furametpyr	Cyproconazole	-
331	Mancozeb	Furametpyr	Difenoconazole	-
332	Mancozeb	Furametpyr	Epoxiconazole	-
333	Mancozeb	Furametpyr	Hexaconazole	-
334	Mancozeb	Furametpyr	Tebuconazole	-
335	Mancozeb	Furametpyr	Tetraconazole	-
336	Mancozeb	Furametpyr	Prothioconazole	-
337	Mancozeb	Furametpyr	-	Azoxystrobin
338	Mancozeb	Furametpyr	-	Picoxystrobin
339	Mancozeb	Furametpyr	-	Pyraclostrobin
340	Mancozeb	Furametpyr	-	Kresoxim-methyl
341	Mancozeb	Furametpyr	-	Trifloxystrobin
342	Mancozeb	Furametpyr	Cyproconazole	Azoxystrobin
343	Mancozeb	Furametpyr	Cyproconazole	Picoxystrobin
344	Mancozeb	Furametpyr	Cyproconazole	Pyraclostrobin
345	Mancozeb	Furametpyr	Cyproconazole	Kresoxim-methyl

346	Mancozeb	Furametpyr	Cyproconazole	Trifloxystrobin
347	Mancozeb	Furametpyr	Difenoconazole	Azoxystrobin
348	Mancozeb	Furametpyr	Difenoconazole	Picoxystrobin
349	Mancozeb	Furametpyr	Difenoconazole	Pyraclostrobin
350	Mancozeb	Furametpyr	Difenoconazole	Kresoxim-methyl
351	Mancozeb	Furametpyr	Difenoconazole	Trifloxystrobin
352	Mancozeb	Furametpyr	Epoxiconazole	Azoxystrobin
353	Mancozeb	Furametpyr	Epoxiconazole	Picoxystrobin
354	Mancozeb	Furametpyr	Epoxiconazole	Pyraclostrobin
355	Mancozeb	Furametpyr	Epoxiconazole	Kresoxim-methyl
356	Mancozeb	Furametpyr	Epoxiconazole	Trifloxystrobin
357	Mancozeb	Furametpyr	Hexaconazole	Azoxystrobin
358	Mancozeb	Furametpyr	Hexaconazole	Picoxystrobin
359	Mancozeb	Furametpyr	Hexaconazole	Pyraclostrobin
360	Mancozeb	Furametpyr	Hexaconazole	Kresoxim-methyl
361	Mancozeb	Furametpyr	Hexaconazole	Trifloxystrobin
362	Mancozeb	Furametpyr	Tebuconazole	Azoxystrobin
363	Mancozeb	Furametpyr	Tebuconazole	Picoxystrobin
364	Mancozeb	Furametpyr	Tebuconazole	Pyraclostrobin
365	Mancozeb	Furametpyr	Tebuconazole	Kresoxim-methyl
366	Mancozeb	Furametpyr	Tebuconazole	Trifloxystrobin
367	Mancozeb	Furametpyr	Tetraconazole	Azoxystrobin

368	Mancozeb	Furametpyr	Tetraconazole	Picoxystrobin
369	Mancozeb	Furametpyr	Tetraconazole	Pyraclostrobin
370	Mancozeb	Furametpyr	Tetraconazole	Kresoxim-methyl
371	Mancozeb	Furametpyr	Tetraconazole	Trifloxystrobin
372	Mancozeb	Furametpyr	Prothioconazole	Azoxystrobin
273	Mancozeb	Furametpyr	Prothioconazole	Picoxystrobin
374	Mancozeb	Furametpyr	Prothioconazole	Pyraclostrobin
375	Mancozeb	Furametpyr	Prothioconazole	Kresoxim-methyl
376	Mancozeb	Furametpyr	Prothioconazole	Trifloxystrobin

In an embodiment of the combinations of the present invention, the preferred succinate dehydrogenase inhibitor fungicide is Penflufen.

In an embodiment, the combinations of the present invention include the following preferred combinations:

S No.	I	II	III	IV
377	Mancozeb	Penflufen	Cyproconazole	-
378	Mancozeb	Penflufen	Difenoconazole	-
379	Mancozeb	Penflufen	Epoxiconazole	-
380	Mancozeb	Penflufen	Hexaconazole	-
381	Mancozeb	Penflufen	Tebuconazole	-
382	Mancozeb	Penflufen	Tetraconazole	-
383	Mancozeb	Penflufen	Prothioconazole	-
384	Mancozeb	Penflufen	-	Azoxystrobin

385	Mancozeb	Penflufen	-	Picoxystrobin
386	Mancozeb	Penflufen	-	Pyraclostrobin
387	Mancozeb	Penflufen	-	Kresoxim-methyl
388	Mancozeb	Penflufen	-	Trifloxystrobin
389	Mancozeb	Penflufen	Cyproconazole	Azoxystrobin
390	Mancozeb	Penflufen	Cyproconazole	Picoxystrobin
391	Mancozeb	Penflufen	Cyproconazole	Pyraclostrobin
392	Mancozeb	Penflufen	Cyproconazole	Kresoxim-methyl
393	Mancozeb	Penflufen	Cyproconazole	Trifloxystrobin
394	Mancozeb	Penflufen	Difenoconazole	Azoxystrobin
395	Mancozeb	Penflufen	Difenoconazole	Picoxystrobin
396	Mancozeb	Penflufen	Difenoconazole	Pyraclostrobin
397	Mancozeb	Penflufen	Difenoconazole	Kresoxim-methyl
398	Mancozeb	Penflufen	Difenoconazole	Trifloxystrobin
399	Mancozeb	Penflufen	Epoxiconazole	Azoxystrobin
400	Mancozeb	Penflufen	Epoxiconazole	Picoxystrobin
401	Mancozeb	Penflufen	Epoxiconazole	Pyraclostrobin
402	Mancozeb	Penflufen	Epoxiconazole	Kresoxim-methyl
403	Mancozeb	Penflufen	Epoxiconazole	Trifloxystrobin
404	Mancozeb	Penflufen	Hexaconazole	Azoxystrobin
405	Mancozeb	Penflufen	Hexaconazole	Picoxystrobin
406	Mancozeb	Penflufen	Hexaconazole	Pyraclostrobin

407	Mancozeb	Penflufen	Hexaconazole	Kresoxim-methyl
408	Mancozeb	Penflufen	Hexaconazole	Trifloxystrobin
409	Mancozeb	Penflufen	Tebuconazole	Azoxystrobin
410	Mancozeb	Penflufen	Tebuconazole	Picoxystrobin
411	Mancozeb	Penflufen	Tebuconazole	Pyraclostrobin
412	Mancozeb	Penflufen	Tebuconazole	Kresoxim-methyl
413	Mancozeb	Penflufen	Tebuconazole	Trifloxystrobin
414	Mancozeb	Penflufen	Tetraconazole	Azoxystrobin
415	Mancozeb	Penflufen	Tetraconazole	Picoxystrobin
416	Mancozeb	Penflufen	Tetraconazole	Pyraclostrobin
417	Mancozeb	Penflufen	Tetraconazole	Kresoxim-methyl
418	Mancozeb	Penflufen	Tetraconazole	Trifloxystrobin
419	Mancozeb	Penflufen	Prothioconazole	Azoxystrobin
420	Mancozeb	Penflufen	Prothioconazole	Picoxystrobin
421	Mancozeb	Penflufen	Prothioconazole	Pyraclostrobin
422	Mancozeb	Penflufen	Prothioconazole	Kresoxim-methyl
423	Mancozeb	Penflufen	Prothioconazole	Trifloxystrobin

In an embodiment of the combinations of the present invention, the preferred succinate dehydrogenase inhibitor fungicide is Sedaxane.

In an embodiment, the combinations of the present invention include the following preferred combinations:

S No.	I	II	III	IV
424	Mancozeb	Sedaxane	Cyproconazole	-
425	Mancozeb	Sedaxane	Difenoconazole	-
426	Mancozeb	Sedaxane	Epoxiconazole	-
427	Mancozeb	Sedaxane	Hexaconazole	-
428	Mancozeb	Sedaxane	Tebuconazole	-
429	Mancozeb	Sedaxane	Tetraconazole	-
430	Mancozeb	Sedaxane	Prothioconazole	-
431	Mancozeb	Sedaxane	-	Azoxystrobin
432	Mancozeb	Sedaxane	-	Picoxystrobin
433	Mancozeb	Sedaxane	-	Pyraclostrobin
434	Mancozeb	Sedaxane	-	Kresoxim-methyl
435	Mancozeb	Sedaxane	-	Trifloxystrobin
436	Mancozeb	Sedaxane	Cyproconazole	Azoxystrobin
437	Mancozeb	Sedaxane	Cyproconazole	Picoxystrobin
438	Mancozeb	Sedaxane	Cyproconazole	Pyraclostrobin
439	Mancozeb	Sedaxane	Cyproconazole	Kresoxim-methyl
440	Mancozeb	Sedaxane	Cyproconazole	Trifloxystrobin
441	Mancozeb	Sedaxane	Difenoconazole	Azoxystrobin
442	Mancozeb	Sedaxane	Difenoconazole	Picoxystrobin
443	Mancozeb	Sedaxane	Difenoconazole	Pyraclostrobin
444	Mancozeb	Sedaxane	Difenoconazole	Kresoxim-methyl

445	Mancozeb	Sedaxane	Difenoconazole	Trifloxystrobin
446	Mancozeb	Sedaxane	Epoxiconazole	Azoxystrobin
447	Mancozeb	Sedaxane	Epoxiconazole	Picoxystrobin
448	Mancozeb	Sedaxane	Epoxiconazole	Pyraclostrobin
449	Mancozeb	Sedaxane	Epoxiconazole	Kresoxim-methyl
450	Mancozeb	Sedaxane	Epoxiconazole	Trifloxystrobin
451	Mancozeb	Sedaxane	Hexaconazole	Azoxystrobin
452	Mancozeb	Sedaxane	Hexaconazole	Picoxystrobin
453	Mancozeb	Sedaxane	Hexaconazole	Pyraclostrobin
454	Mancozeb	Sedaxane	Hexaconazole	Kresoxim-methyl
455	Mancozeb	Sedaxane	Hexaconazole	Trifloxystrobin
456	Mancozeb	Sedaxane	Tebuconazole	Azoxystrobin
457	Mancozeb	Sedaxane	Tebuconazole	Picoxystrobin
458	Mancozeb	Sedaxane	Tebuconazole	Pyraclostrobin
459	Mancozeb	Sedaxane	Tebuconazole	Kresoxim-methyl
460	Mancozeb	Sedaxane	Tebuconazole	Trifloxystrobin
461	Mancozeb	Sedaxane	Tetraconazole	Azoxystrobin
462	Mancozeb	Sedaxane	Tetraconazole	Picoxystrobin
463	Mancozeb	Sedaxane	Tetraconazole	Pyraclostrobin
464	Mancozeb	Sedaxane	Tetraconazole	Kresoxim-methyl
465	Mancozeb	Sedaxane	Tetraconazole	Trifloxystrobin
466	Mancozeb	Sedaxane	Prothioconazole	Azoxystrobin

467	Mancozeb	Sedaxane	Prothioconazole	Picoxystrobin
468	Mancozeb	Sedaxane	Prothioconazole	Pyraclostrobin
469	Mancozeb	Sedaxane	Prothioconazole	Kresoxim-methyl
470	Mancozeb	Sedaxane	Prothioconazole	Trifloxystrobin

The combinations of the present invention may be formulated in the form of a composition.

In an embodiment, the present invention may provide a composition comprising:
(a) at least one succinate dehydrogenase inhibitor fungicide;
(b) at least one dithiocarbamate fungicide;
(c) at least one quinone outside inhibitor; and
(d) at least one agrochemically acceptable excipient.

In an embodiment, the present invention may provide a composition comprising:
(a) at least one succinate dehydrogenase inhibitor fungicide;
(b) at least one dithiocarbamate fungicide;
(c) at least one ergostrol biosynthesis inhibitor; and
(d) at least one agrochemically acceptable excipient.

In an embodiment, the present invention may provide a composition comprising:
(a) at least one succinate dehydrogenase inhibitor fungicide;
(b) at least one dithiocarbamate fungicide;
(c) at least one a quinone outside inhibitor;
(d) at least one ergostrol biosynthesis inhibitor; and
(e) at least one agrochemically acceptable excipient.

The amount of a composition according to the invention to be applied, will depend on various factors, such as the subject of the treatment, such as, for example plants, soil or seeds; the type of treatment, such as, for example spraying, dusting or seed dressing; the purpose of the treatment, such as, for example prophylactic or therapeutic disease control; in case of disease control the type of fungi to be controlled or the application time. This amount of the combinations of the present invention to be applied can be readily deduced by a skilled agronomist.

Thus in an embodiment, the present invention may provide compositions comprising:

ц at least one pyrazaole carboxamide selected from benzovindiflupyr, bixafen, fluxapyroxad, furametpyr, isopyrazam, penflufen, penthiopyrad, and sedaxane;

г、 at least one quinone outside inhibitor, and/or at least one ergostrol biosynthesis inhibitor; and

д at last one dithiocarbamate fungicide;

said fungicides being combined in agrochemically acceptable amounts.

In an embodiment, the total amount of succinate dehydrogenase inhibitor in the composition may typically be in the range of 0.1 to 99% by weight, preferably 0.2 to 90% by weight. The total amount of dithiocarbamate fungicide in the composition may be in the range of 0.1 to 99% by weight. The total amount of ergostrol biosynthesis inhibitor in the composition may be in the range of 0.1 to 99% by weight. The total amount of Quinone outside inhibitor in the composition may be in the range of 0.1 to 99% by weight.

In an embodiment, the constituent fungicides of the combination of the present invention may be admixed in ratio of (1-80): (1-80): (1-80) of the dithiocarbamate fungicide, succinate dehydrogenase inhibitor fungicide and the third fungicide respectively.

In an embodiment, the constituents of the composition of the present invention may be tank mixed and sprayed at the locus of the infection, or may be alternatively be mixed with surfactants and then sprayed.

In an embodiment, the constituents of the composition of the present invention may be used for foliar application, ground or applications to plant propagation materials.

In an embodiment, the compositions of the present invention may typically be produce by mixing the actives in the composition with an inert carrier, and adding surfactants and other adjuvants and carriers as needed and formulated into solid, or liquid formulations, including but not limited to wettable powders, granules, dusts, Soluble (liquid) concentrates, suspension concentrates, oil in water emulsion, water in oil emulsion, emulsifiable concentrates, capsule suspensions, ZC formulations, oil dispersions or other known formulation types. The composition may also be used for treatment of a plant propagation material such as seeds etc.

Examples of the solid carrier used in formulation include fine powders or granules such as minerals such as kaolin clay, attapulgite clay, bentonite, montmorillonite, acid white clay, pyrophyllite, talc, diatomaceous earth and calcite; natural organic materials such as corn rachis powder and walnut husk powder; synthetic organic materials such as urea; salts such as calcium carbonate and ammonium sulfate;

synthetic inorganic materials such as synthetic hydrated silicon oxide; and as a liquid carrier, aromatic hydrocarbons such as xylene, alkylbenzene and methylnaphthalene; alcohols such as 2-propanol, ethyleneglycol, propylene glycol, and ethylene glycol monoethyl ether; ketones such as acetone, cyclohexanone and isophorone; vegetable oil such as soybean oil and cotton seed oil; petroleum aliphatic hydrocarbons, esters, dimethylsulfoxide, acetonitrile and water.

Examples of the surfactant include anionic surfactants such as alkyl sulfate ester salts, alkylaryl sulfonate salts, dialkyl sulfosuccinate salts, polyoxyethylene alkylaryl ether phosphate ester salts, lignosulfonate salts and naphthalene sulfonate formaldehyde polycondensates; and nonionic surfactants such as polyoxyethylene alkyl aryl ethers, polyoxyethylene alkylpolyoxypropylene block copolymers and sorbitan fatty acid esters and cationic surfactants such as alkyltrimethylammonium salts.

Examples of the other formulation auxiliary agents include water-soluble polymers such as polyvinyl alcohol and polyvinylpyrrolidone, polysaccharides such as Arabic gum, alginic acid and the salt thereof, CMC (carboxymethyl- cellulose) , Xanthan gum, inorganic materials such as aluminum magnesium silicate and alumina sol, preservatives, coloring agents and stabilization agents such as PAP (acid phosphate isopropyl) and BHT.

The compositions according to the present invention is effective for the following plant diseases:

Disease in rice: Blast (Magnaporthe grisea), Helminthosporium leaf spot (Cochliobolus miyabeanus), sheath blight (Rhizoctonia solani) , and bakanae disease (Gibberella fujikuroi).

Diseases in wheat: powdery mildew (Erysiphe graminis) , Fusariuin head blight (Fusarium graminearum, F. avenacerum, F. culmorum, Microdochium nivale) , rust (Puccinia striiformis, P. graminis, P. recondita) , pink snow mold (Micronectriella nivale), Typhula snow blight (Typhula sp .) , loose smut (Ustilago tritici) , bunt (Tilletia caries) , eyespot (Pseudocercosporella herpotrichoides) , leaf blotch (Mycosphaerella graminicola) , glume blotch (Stagonospora nodorum) , septoria, and yellow spot (Pyrenophora tritici-repentis) .

Diseases of barley: powdery mildew (Erysiphe graminis), Fusarium head blight (Fusarium graminearum, F. avenacerum, F. culmorum, Microdochium nivale), rust (Puccinia striiformis, P. graminis, P. hordei) , loose smut (Ustilago nuda) , scald (Rhynchosporium secalis) , net blotch (Pyrenophora teres), spot blotch (Cochliobolus sativus), leaf stripe (Pyrenophora graminea) , and Rhizoctonia damping-off (Rhizoctonia solani) .

Diseases in corn: smut (Ustilago maydis), brown spot (Cochliobolus heterostrophus), copper spot (Gloeocercospora sorghi), southern rust (Puccinia polysora), gray leaf spot (Cercospora zeae-maydis), white spot (Phaeosphaeria mydis and/or Pantoea ananatis) and Rhizoctonia damping-off (Rhizoctonia solani).

Diseases of citrus: melanose (Diaporthe citri), scab (Elsinoe fawcetti), penicillium rot (Penicillium digitatum, P.italicum), and brown rot (Phytophthora parasitica, Phytophthora citrophthora) .

Diseases of apple: blossom blight (Monilinia mali), canker (Valsa ceratosperma), powdery mildew (Podosphaera leucotricha), Alternaria leaf spot (Alternaria alternata apple pathotype) , scab (Venturia inaequalis) , powdery mildew, bitter rot (Colletotrichum acutatum), crown rot (Phytophtora cactorum) , blotch (Diplocarpon mali) , and ring rot (Botryosphaeria berengeriana) .

Diseases of pear: scab (Venturia nashicola, V. pirina) , powdery mildew, black spot (Alternaria alternata Japanese pear pathotype) , rust (Gymnosporangium haraeanum) , and phytophthora fruit rot (Phytophtora cactorum).

Diseases of peach: brown rot (Monilinia fructicola), powdery mildew, scab (Cladosporium carpophilum), and phomopsis rot (Phomopsis sp.).

Diseases of grape: anthracnose (Elsinoe ampelina) , ripe rot (Glomerella cingulata), powdery mildew (Uncinula necator) , rust (Phakopsora ampelopsidis) , black rot (Guignardia bidwellii) , botrytis, and downy mildew (Plasmopara viticola) .

Diseases of Japanese persimmon: anthracnose (Gloeosporium kaki) , and leaf spot (Cercospora kaki, Mycosphaerella nawae) .

Diseases of gourd: anthracnose (Colletotrichum lagenarium) , powdery mildew (Sphaerotheca fuliginea) , gummy stem blight (Mycosphaerella melonis) , Fusarium wilt (Fusarium oxysporum) , downy mildew (Pseudoperonospora cubensis) , Phytophthora rot (Phytophthora sp.) , and damping-off (Pythium sp .).

Diseases of tomato: early blight (Alternaria solani) , leaf mold (Cladosporium fulvum) , and late blight (Phytophthora infestans) .

Diseases of eggplant: brown spot (Phomopsis vexans) , and powdery mildew (Erysiphe cichoracearum) Diseases of cruciferous vegetables: Alternaria leaf spot (Alternaria japonica) , white spot (Cercosporella brassicae) , clubroot (Plasmodiophora brassicae) , and downy mildew (Peronospora parasitica) .

Diseases of onion: rust (Puccinia allii) , and downy mildew (Peronospora destructor).

Diseases of soybean: purple seed stain (Cercospora kikuchii) , sphaceloma scad (Elsinoe glycines) , pod and stem blight (Diaporthe phaseolorum var. sojae) , septoria brown spot (Septoria glycines), frogeye leaf spot (Cercospora sojina), rust (Phakopsora pachyrhizi) , Yellow rust, brown stem rot (Phytophthora sojae), and Rhizoctonia damping-off (Rhizoctonia solani) .

Diseases of kidney bean: anthracnose (Colletotrichum lindemthianum) . Diseases of peanut: leaf spot (Cercospora personata), brown leaf spot (Cercospora arachidicola) and southern blight (Sclerotium rolfsii).

Diseases of garden pea: powdery mildew (Erysiphe pisi) , and root rot (Fusarium solani f. sp. pisi) .

Diseases of potato: early blight (Alternaria solani), late blight (Phytophthora infestans), pink rot (Phytophthora erythroseptica), and powdery scab (Spongospora subterranean f. sp. subterranea).

Diseases of strawberry: powdery mildew (Sphaerotheca humuli), and anthracnose (Glomerella cingulata).

Diseases of tea: net blister blight (Exobasidium reticulatum), white scab (Elsinoe leucospila) , gray blight (Pestalotiopsis sp.), and anthracnose (Colletotrichum theae-sinensis) .

Diseases of tobacco: brown spot (Alternaria longipes) , powdery mildew (Erysiphe cichoracearum), anthracnose (Colletotrichum tabacum), downy mildew (Peronospora tabacina) , and black shank (Phytophthora nicotianae).

Diseases of rapeseed: sclerotinia rot (Sclerotinia sclerotiorum) , and Rhizoctonia damping-off (Rhizoctonia solani) . Diseases of cotton: Rhizoctonia damping-off (Rhizoctonia solani) .

Diseases of sugar beat: Cercospora leaf spot (Cercospora beticola) , leaf blight (Thanatephorus cucumeris), Root rot (Thanatephorus cucumeris), and Aphanomyces root rot (Aphanomyces cochlioides) .

Diseases of rose: black spot (Diplocarpon rosae) , powdery mildew (Sphaerotheca pannosa) , and downy mildew (Peronospora sparsa) . Diseases of chrysanthemum and asteraceous plants: downy mildew (Bremia lactucae), leaf blight (Septoria chrysanthemi-indici) , and white rust (Puccinia horiana).

Diseases of various groups: diseases caused by Pythium spp. (Pythium aphanidermatum, Pythium debarianum, Pythium graminicola, Pythium irregulare,

Pythium ultimum), gray mold. (Botrytis cinerea), and Sclerotinia rot (Sclerotinia sclerotiorum).

Disease of Japanese radish: Alternaria leaf spot (Alternaria brassicicola).

Diseases of turfgrass: dollar spot (Sclerotinia homeocarpa), and brown patch and large patch (Rhizoctonia solani).

Disease of banana: Black sigatoka (Mycosphaerella fijiensis), Yellow sigatoka (Mycosphaerella musicola).

Disease of sunflower: downy mildew (Plasmopara halstedii) .

Seed diseases or diseases in the early stages of the growth of various plants caused by Aspergillus spp., Penicillium spp., Fusarium spp., Gibberella spp., Tricoderma spp., Thielaviopsis spp., Rhizopus spp., Mucor spp., Corticium spp., Phoma spp., Rhizoctonia spp. and Diplodia spp.

Viral diseases of various plants mediated by Polymixa spp. or Olpidium spp. and so on.

The compositions of the present invention can be used in agricultural lands such as fields, paddy fields, lawns and orchards or in non-agricultural lands. The present invention may be used to control diseases in agricultural lands for cultivating the plants without any phytotoxicity to the plant.

Examples of the crops on which the present compositions may be used include but are not limited to corn, rice, wheat, barley, rye, oat, sorghum, cotton, soybean, peanut, buckwheat, beet, rapeseed, sunflower, sugar cane, tobacco, etc.; vegetables: solanaceous vegetables such as eggplant, tomato, pimento, pepper, potato, etc., cucurbit vegetables such as cucumber, pumpkin, zucchini, water melon, melon, squash, etc., cruciferous vegetables such as radish, white turnip, horseradish, kohlrabi, Chinese cabbage, cabbage, leaf mustard, broccoli, cauliflower, etc., asteraceous vegetables such as burdock, crown daisy, artichoke, lettuce, etc, liliaceous vegetables such as green onion, onion, garlic, and asparagus, ammiaceous vegetables such as carrot, parsley, celery, parsnip, etc., chenopodiaceous vegetables such as spinach, Swiss chard, etc., lamiaceous vegetables such as Perilla frutescens, mint, basil, etc, strawberry, sweet potato, Dioscorea japonica, colocasia, etc., flowers, foliage plants, turf grasses, fruits: pome fruits such apple, pear, quince, etc, stone fleshy fruits such as peach, plum, nectarine, Prunus mume, cherry fruit, apricot, prune, etc., citrus fruits such as orange, lemon, rime, grapefruit, etc., nuts such as chestnuts, walnuts, hazelnuts, almond, pistachio, cashew nuts, macadamia nuts, etc. berries such as blueberry, cranberry, blackberry, raspberry, etc., grape, kaki fruit, olive, plum, banana, coffee, date palm, coconuts, etc. , trees other than fruit trees; tea, mulberry, flowering plant, trees such as ash, birch, dogwood, Eucalyptus, Ginkgo biloba, lilac, maple, Quercus, poplar, Judas tree, Liquidambar formosana, plane tree, zelkova, Japanese arborvitae, fir wood, hemlock, juniper, Pinus, Picea, and Taxus cuspidate, etc.

In an embodiment, the constituent fungicides of the combination of the present invention may be admixed in ratio of (1-80): (1-80): (1-80): (1:80)

In an aspect, the present invention may provide methods of controlling fungal diseases comprising applying a combination comprising:

(a) at least one succinate dehydrogenase inhibitor fungicide;

(b) at least one quinone outside inhibitor and/or at least one ergostrol biosynthesis inhibitor; and

(c) at least one dithiocarbamate fungicide.

In an embodiment, the succinate dehydrogenase inhibitor fungicide, the quinone outside inhibitor fungicide, the ergosterol biosynthesis inhibitor fungicide, and the dithiocarbamate fungicide may be selected according to any of the preferred embodiments of the combinations described hereinabove.

The combinations of the present invention may be sold as a pre-mix composition or a kit of parts such that individual actives may be mixed before spraying. Alternatively, the kit of parts may contain succinate dehydrogenase inhibitor fungicide and the dithiocarbamate fungicide pre-mixed and the third active may be admixed with an adjuvant such that the two components may be tank mixed before spraying.

The composition of the present invention maybe applied simultaneously as a tank mix or a formulation or may be applied sequentially. The application may be made to the soil before emergence of the plants, either pre-planting or post-planting. The application may be made as a foliar spray at different timings during crop development, with either one or two applications early or late post-emergence.

The compositions according to the invention can be applied before or after infection of the useful plants or the propagation material thereof by the fungi.

As will be demonstrated in the examples, the addition of a dithiocarbamate fungicide to a combination of succinate dehydrogenase inhibitors which are combined with Quinone outside inhibitors and/or ergosterol biosynthesis inhibitors, greatly improved the disease control as well as improved yield and demonstrated a synergistic effect. The lower the mixture performance in the disease control, the greater the additional benefit of the mancozeb when added to the compositions of the present invention.

Examples: Studies were conducted to study the addition of dithiocarbamate fungicides to succinate dehydrogenase inhibitor fungicides and at least one other fungicide and the contribution of the dithiocarbamate to the efficacy of these mixtures. Experiments were conducted over a period of two years to study the effect of the addition of dithiocarbamates on the efficacy of succinate dehydrogenase inhibitors alone and when combined with a co-fungicide such as a Quinone outside inhibitors and/or ergosterol biosynthesis inhibitor fungicide. Doses tested were at rates of 1500 g/ha for Mancozeb, 150 ml/ha for the ergosterol biosynthesis inhibitor, 200 g/ha for the Quinone outside inhibitor, 1000 g/ha and 200 g/ha for succinate dehydrogenase inhibitor fungicides. The combinatios were tested for efficacy of disease control in soybean for the control of Asian soybean rust. The trials were carried out at various locations in India.

The test were conducted on soybean cultivar Monsoy 9144 RR. The commercially available individual active ingredients were used at the indicated dosages.

Table 1: Table 1 shows the efficacy of mancozeb when added to combinations containing succinate dehydrogenase inhibitor fungicides and ergosterol biosynthesis inhibitor.

Treatment	Dose rates (ml/g/ha)	Mean percent disease control	
		2015/16	2016/17
Prothioconazole + Benzovindiflupyr	150+200	88.04	71.04
Prothioconazole + Benzovindiflupyr+ Mancozeb	150+200+1500	95.07	95.07
Prothioconazole + Isopyrazam	150+1000	87.14	70.23
Prothioconazole + Isopyrazam+ Mancozeb	150+1000+1500	93.4	93.07
Prothioconazole + Penthoipyrad	150+1000	83.33	68.15
Prothioconazole + Penthiopyrad + Mancozeb	150+1000+1500	93.07	92.18

Table 1 clearly demonstrates the increase in control when mancozeb is added to the combination of ergosterol biosynthesis inhibitors and succinate dehydrogenase inhibitor fungicides.

Table 2: Table 2 demonstrates effiacacy when mancozeb is added to combinations of succinate dehydrogenase inhibitor fungicides and quinone outside inhibitor fungicides and ergosterol biosynthesis inhibitors.

Treatment	Dose rates (ml/g/ha)	Mean percent disease control	
		2015/16	2016/17
Prothioconazole + Benzovindiflupyr + Azoxystrobin	150+200+500	93.07	91.07

Prothioconazole + Benzovindiflupyr + Azoxystrobin + Mancozeb	150+ 200+ 500+ 1500	96.36	95.03

Table 2 clearly demonstrates the importance of adding mancozeb to the combination. The addition of mancozeb improved disease control.

It was thus found that the incorporation of mancozeb greatly increased efficacy and disease control of the succinate dehydrogenase inhibitor fungicide treatments when mixed with ergosterol biosynthesis inhibitors or quinone outside inhibitors. It was thus concluded that the addition of mancozeb enhanced the efficacy of the combination and surpsingly gave a synergistic effect. The addition of a dithiocarbamate increased disease control and improved yield of plants. The instant invention is more specifically explained by above examples. However, it should be understood that the scope of the present invention is not limited by the examples in any manner. It will be appreciated by any person skilled in this art that the present invention includes aforesaid examples and further can be modified and altered within the technical scope of the present invention.

While the foregoing written description of the invention enables one of ordinary skill to make and use what is considered presently to be the best mode thereof, those of ordinary skill will understand and appreciate the existence of variations, combinations, and equivalents of the specific embodiment, method, and examples herein. The invention should therefore not be limited by the above described embodiment, method, and examples, but by all embodiments and methods within the scope and spirit of the invention.

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VIII-3-1	**Declaration: Entitlement to claim priority** Declaration as to the applicant's entitlement, as at the international filing date, to claim the priority of the earlier application specified below, where the applicant is not the applicant who filed the earlier application or where the applicant's name has changed since the filing of the earlier application (Rules 4.17(iii) and 51bis.1(a)(iii)) Name	**In relation to the international application No. PCT/IB2017/056710** **UPL LTD** **is entitled to claim priority of earlier application No. IN 201631037704 by virtue of the following:**
VIII-3-1 (iv)		**an assignment from FABRI, Carlos, Eduardo to UPL LTD, dated 30 October 2017 (30.10.2017)**
VIII-3-1 (iv)		**an assignment from SHROFF, Rajju, Devidas to UPL LTD, dated 30 October 2017 (30.10.2017)**
VIII-3-1 (iv)		**an assignment from SHROFF, Jaidev, Rajnikant to UPL LTD, dated 30 October 2017 (30.10.2017)**
VIII-3-1 (iv)		**an assignment from SHROFF, Vikram, Rajnikant to UPL LTD, dated 30 October 2017 (30.10.2017)**

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VIII-2-1 **Declaration: Entitlement to apply for and be granted a patent**

Declaration as to the applicant's entitlement, as at the international filing date, to apply for and be granted a patent (Rules 4.17(ii) and 51bis.1(a)(ii)), in a case where the declaration under Rule 4.17(iv) is not appropriate:

Name (LAST, First)

In relation to the international application No. PCT/IB2017/056710

UPL LTD is entitled to apply for and be granted a patent by virtue of the following:

VIII-2-1 (iv) **an assignment from FABRI, Carlos, Eduardo to UPL LTD, dated 30 October 2017 (30.10.2017)**

VIII-2-1 (iv) **an assignment from SHROFF, Rajju, Devidas to UPL LTD, dated 30 October 2017 (30.10.2017)**

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(81) Designated States *(unless otherwise indicated, for every kind of national protection available)*: AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

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Declarations under Rule 4.17:
— *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*
— *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))*

Published:
— *with international search report (Art. 21(3))*

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(54) Title: FUNGICIDAL COMBINATIONS

(57) Abstract: A combination comprising a dithiocarbamate fungicide, a succinate dehydrogenase fungicide and at least one of ergosterol biosynthesis inhibitor fungicide or a quinone outside inhibitor fungicide.

IB17/56710

INTELLECTUAL PROPERTY **INDIA**
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जिस किसी से संबन्धित हो
TO WHOMSOEVER IT MAY CONCERN

मैं, अधोहस्ताक्षरी जो पेटेंट अधिनियम, 1970 की धारा 73(3) के तहत महानियंत्रक एकस्व, अभिकल्प एवं व्यापार चिह्न की ओर से प्रमाणपत्र हस्ताक्षर व जारी करने के लिए प्राधिकृत अधिकारी हूँ, एतदद्वारा यह प्रमाणित करता(ती) हूँ कि निम्नलिखित पेटेंट आवेदन के संबंध मे फाइल दस्तावेज़(जों) की सही प्रतिलिपि इसके साथ संलग्न है:

I, the undersigned, being an officer duly authorized to sign and issue the certificate on behalf of the Controller General of Patents, Designs and Trademarks in accordance with the provisions of Section 73(3) of the Patents Act, 1970, hereby certify that annexed hereto is a True Copy of the document(s) as filed in connection with the following Patent Application:

क) आवेदन संख्या/a) Application Number: **201631037704**

ख) फाइल करने की तारीख/ b) Date of Filing **04th November,2016**

ग) अनुरोधित दस्तावेज़(जों) का नाम:
C) Name of the document(s) requested: **Provisional Specification**

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दिनांक/Dated this ***……10th…day of …November…2017***

Dharmishtha Ghosh

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(प्राधिकृत हस्ताक्षरी/ Authorised Signatory)

FORM 2

THE PATENTS ACT, 1970

(39 of 1970)

&

The Patents Rules, 2003

PROVISIONAL SPECIFICATION

(See section 10; rule 13)

1. Title of the invention - FUNGICIDAL COMBINATIONS

2. Applicant(s)

(a) NAME :	**UPL LTD**
(b) NATIONALITY :	An Indian Company
(c) ADDRESS :	Agrochemical Plant, Durgachak Haldia – 721 602, Midnapore Dist. West Bengal, India

3. PREAMBLE TO THE DESCRIPTION

The following specification describes the invention

Technical field:

The present invention relates to a combination of fungicides. More specifically, the present invention relates to fungicidal combinations comprising succinate dehydrogenase inhibitor fungicides for controlling a broad spectrum of fungal diseases.

Background of the invention:

Fungicides are an integral and important tool yielded by farmers to control diseases, as well as to improve yields and quality of the crops. There are various fungicides that have been developed over the years with many desirable attributes such as specificity, systemicity, curative and eradicant action and high activity at low use rates.

Succinate dehydrogenase inhibitor (SDHI) fungicides are known in the art to be broad spectrum and have a high potency. Pyrazolecarboxamides are a group of active compounds within the SDHI family of fungicides that are known to be more potent than most other SDHI fungicides. These molecules specifically bind to the ubiquinone-binding site (Q-site) of the mitochondrial complex II, thereby inhibiting fungal respiration. These fungicides are known to control a broad spectrum of fungal diseases.

Various other classes of fungicides are also known in the art, such as Quinone outside inhibitors (Qols), ergosterol-biosynthesis inhibitors,

fungicides that act on multiple sites, fungicides that affect mitosis etc. These fungicides have been mixed with SDHI fungicides to achieve a broad spectrum of disease control.

WO2006037632 teaches combinations of SDHI fungicides with a second active compound. WO2013127818 teaches combinations of SDHI fungicides with various herbicides. WO2006037634 teaches methods of controlling fungi using a combination of SDHI fungicide with various fungicides. However, the prior art does not teach the use of ternary or higher combinations of SDHI fungicides.

Dithiocarbamate are known in the art as multi-site fungicides. These fungicides are used for broad-spectrum disease control in more than 70 crops. Mancozeb is especially important for controlling devastating and fast spreading diseases such as *Phytophthora infestans*, *Venturia inaequalis* etc. Dithiocarbamate fungicides, especially mancozeb, are particularly useful for disease control because of their broad spectrum of activity, high tolerance by crop plants, and general usefulness for controlling fungal plant diseases not controlled by active compounds that act on only a single target site in the fungus.

Mancozeb has been combined with various SDHI fungicides for disease control. There is a need in the art to improve on the disease spectrum provided by these combinations.

There is therefore a need in the art for combinations of SDHIs with a specific fungicide that helps improve spectrum. With crop tolerances decreasing, lower use rates being imposed and resistance being increasingly observed, there is a need for a combination of actives that allows for broader disease control spectrum that combines curative and preventive actives and has a lower dosage.

Therefore, embodiments of the present invention may ameliorate one or more of the above mentioned problems:

Therefore, embodiments of the present invention may provide combinations of fungicides that possess an enhanced efficacy over the individual fungicides used in isolation.

Another object of the present invention is to provide a fungicidal combination that causes an enhanced greening of the crops to which it is administered.

Another object of the present invention is to provide a fungicidal combination that causes late senescence to the crop to which it is applied thereby resulting into an increasing yield of the crop.

Yet another object of the present invention is to provide a fungicidal combination that results into reduced fungal disease incidence in the crops to which it is applied.

Another object of the present invention is to provide a fungicidal combination that achieves increased yield in the crops to which it is applied.

Some or all these and other objects of the invention are can be achieved by way of the invention described hereinafter.

Summary of the invention:

Thus, an aspect of the present invention can provide a fungicidal combination comprising at least one succinate dehydrogenase inhibitor fungicide, at least one dithiocarbamate fungicide, and at least another fungicide.

Another aspect of the present invention can provide a fungicidal combination comprising at least one succinate dehydrogenase inhibitor fungicide, at least one dithiocarbamate fungicide and at least two other fungicides.

Another aspect of the present invention can provide synergistic compositions comprising at least one succinate dehydrogenase inhibitor fungicide, at least one dithiocarbamate fungicide, and at least one other fungicide.

Another aspect of the present invention can provide synergistic compositions comprising at least one succinate dehydrogenase inhibitor

fungicide, at least one dithiocarbamate fungicide and at least two other fungicides.

Detailed Description:

The term 'disease control' as used herein denotes control and prevention of a disease. Controlling effects include all deviation from natural development, for example: killing, retardation, decrease of the fugal disease. The term 'plants' refers to all physical parts of a plant, including seeds, seedlings, saplings, roots, tubers, stems, stalks, foliage and fruits. The term "locus" of a plant as used herein is intended to embrace the place on which the plants are growing, where the plant propagation materials of the plants are sown or where the plant propagation materials of the plants will be placed into the soil. The term "plant propagation material" is understood to denote generative parts of a plant, such as seeds, vegetative material such as cuttings or tubers, roots, fruits, tubers, bulbs, rhizomes and parts of plants, germinated plants and young plants which are to be transplanted after germination or after emergence from the soil. These young plants may be protected before transplantation by a total or partial treatment by immersion. The term "agriculturally acceptable amount of active" refers to an amount of an active that kills or inhibits the plant disease for which control is desired, in an amount not significantly toxic to the plant being treated.

Succinate dehydrogenase inhibitor (SDHI) fungicides play an important role in plant protection against many phytopathogenic fungi. These molecules

specifically bind to the ubiquinone-binding site (Q-site) of the mitochondrial complex II, thereby inhibiting fungal respiration. Dithiocarbamate are multi-site contact fungicides. These molecules attack multiple sites within the fugal cells.

It has surprisingly been found that the addition of a dithiocarbamate fungicide to the combinations of succinate dehydrogenase inhibitors with at least another fungicide selected from an ergosterol biosynthesis inhibitors or Quinone outside inhibitors or a combination thereof, resulted in surprising and unexpected advantages. It was surprising that the addition of a dithiocarbamate fungicide to the combination of a succinate dehydrogenase inhibitor with at least another fungicide selected from an ergosterol biosynthesis inhibitors and/or Quinone outside inhibitors or a combination thereof resulted in an enhancement of the efficacy, and a surprising reduction in fungal disease incidence, seen only with the combination of succinate dehydrogenase inhibitors with at least another fungicide selected from an ergosterol biosynthesis inhibitors or Quinone outside inhibitors or a combination thereof. It has further been found that the addition of a dithiocarbamate fungicide to these combinations and application of these combinations during the flowering stage of the crop delayed the senescence in the crop to which they were applied, which led to better greening in the crop thereby increasing the level of photosynthesis occurring within the plant, thereby leading to a greater yield from the crop to which they were applied.

These surprising advantages of the combinations of the invention were not observed when the dithiocarbamate fungicide was not present in the combination. Therefore, these unexpected advantages of the combination of the present invention could be attributed to the inclusion of a dithiocarbamate fungicide to the combination of a succinate dehydrogenase inhibitor with at least another fungicide selected from an ergosterol biosynthesis inhibitors and/or Quinone outside inhibitors or a combination thereof.

Thus, in an aspect, the present invention provides a fungicidal combination comprising:

(a) at least one dithiocarbamate fungicide;

(b) at least one succinate dehydrogenase inhibitor fungicide; and

(c) at least another fungicide selected from an ergosterol biosynthesis inhibitors and/or Quinone outside inhibitors.

In an embodiment, the dithiocarbamate fungicide is selected from the group consisting of amobam, asomate, azithiram, carbamorph, cufraneb, cuprobam, disulfiram, ferbam, metam, nabam, tecoram, thiram, urbacide, ziram, dazomet, etem, milneb, mancopper, mancozeb, maneb, metiram, polycarbamate, propineb and zineb.

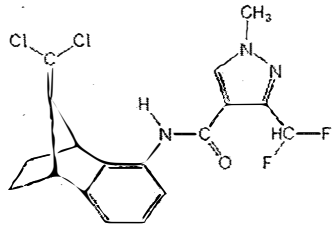
In an embodiment, the preferred dithiocarbamate fungicide is mancozeb.

In an embodiment, the succinate dehydrogenase inhibitor is selected from pyrazole carboxamide class of succinate dehydrogenase inhibitor

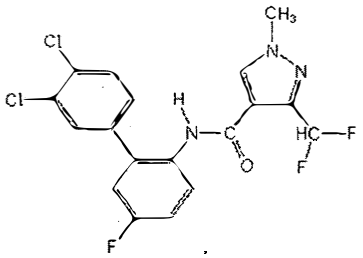
fungicides. However, it should be understood that the choice of succinate dehydrogenase inhibitors is not understood to be limited to these pyrazole carboxamide fungicides alone.

In an embodiment, the pyrazole carboxamide class of succinate dehydrogenase inhibitor fungicide may be selected from benzovindiflupyr, bixafen, fluxapyroxad, furametpyr, isopyrazam, penflufen, penthiopyrad, and sedaxane.

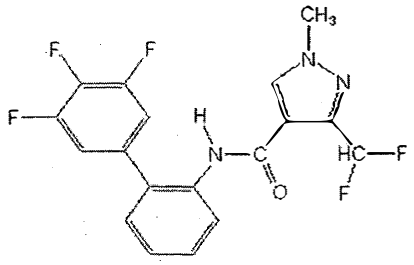
Benzovindiflupyr has the chemical name *N*-[(1*RS*,4*SR*)-9-(dichloromethylene)-1,2,3,4-tetrahydro-1,4-methanonaphthalen-5-yl]-3-(difluoromethyl)-1-methylpyrazole-4-carboxamide and has the structure:



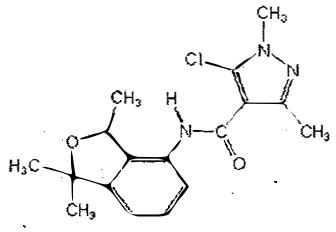
Bixafen has the chemical name *N*-(3',4'-dichloro-5-fluorobiphenyl-2-yl)-3-(difluoromethyl)-1-methylpyrazole-4-carboxamide and the structure:



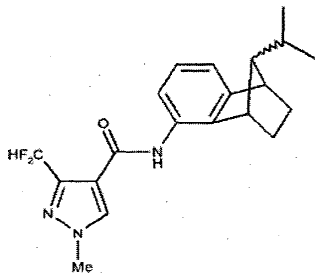
Fluxapyroxad has the chemical name 3-(difluoromethyl)-1-methyl-*N*-(3',4',5'-trifluorobiphenyl-2-yl)pyrazole-4-carboxamide and has the structure:



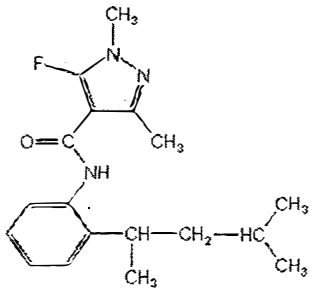
Furametpyr has the chemical name (*RS*)-5-chloro-*N*-(1,3-dihydro-1,1,3-trimethylisobenzofuran-4-yl)-1,3-dimethylpyrazole-4-carboxamide and has the structure:



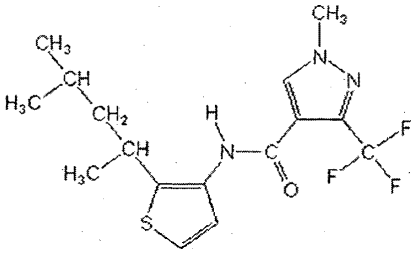
Isopyrazam is a mixture of 2 isomers 3-(difluoromethyl)-1-methyl-*N*-[(1*RS*,4*SR*,9*RS*)-1,2,3,4-tetrahydro-9-isopropyl-1,4-methanonaphthalen-5-yl]pyrazole-4-carboxamide and 2 aisomers 3-(difluoromethyl)-1-methyl-*N*-[(1*RS*,4*SR*,9*SR*)-1,2,3,4-tetrahydro-9-isopropyl-1,4-methanonaphthalen-5-yl]pyrazole-4-carboxamide and its tautomer's have the structure:



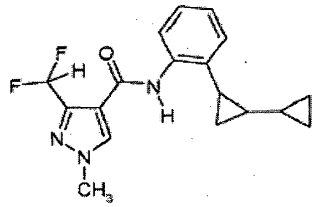
Penflufen has the chemical name *N*-[2-(1,3-dimethylbutyl)phenyl]-5-fluoro-1,3-dimethyl-1*H*-pyrazole-4-carboxamide, and has the following structure:



Penthiopyrad has the chemical name (*RS*)-*N*-[2-(1,3-dimethylbutyl)-3-thienyl]-1-methyl-3-(trifluoromethyl)pyrazole-4-carboxamide, and has the following structure:



Sedaxane is a mixture of 2 cis-isomers 2'-[(1*RS*,2*RS*)-1,1'-bicycloprop-2-yl]-3-(difluoromethyl)-1-methylpyrazole-4-carboxanilide and 2 trans-isomers 2'-[(1*RS*,2*SR*)-1,1'-bicycloprop-2-yl]-3-(difluoromethyl)-1-methylpyrazole-4-carboxanilide , and its tautomer's have the structure:



In an embodiment, the succinate dehydrogenase inhibitor fungicide may be selected from the group consisting of benodanil, flutolanil, mepronil, isofetamid, fluopyram, fenfuram, carboxin, oxycarboxin, thifluzamide, boscalid and IR9792.

In an embodiment, the third and/or fourth fungicides in the combinations of the present invention may be selected from ergosterol biosynthesis inhibitors, and/or Quinone outside (Qo) inhibitors or mixtures thereof.

Thus in an embodiment, the ergosterol biosynthesis inhibitors may be selected from the group consisting of azaconazole, bitertanol, bromuconazole, cyproconazole, difenoconazole, diniconazole, epoxiconazole, etaconazole, fenbuconazole, fluquinconazole, flusilazole, flutriafol, hexaconazole, imibenconazole, Ipconazole, metconazole, myclobutanil, penconazole, Propiconazole, simeconazole, tebuconazole, tetraconazole, triadimefon, triadimenol, triticonazole, prothioconazole,

imazalil, oxpoconazole, pefurazoate, prochloraz, triflumizole, fenarimol, nuarimol, pyrifenox , pyrisoxazole, triforine and mixtures thereof.

In another embodiment, the ergosterol biosynthesis inhibitors may be selected from prothioconazole, tebuconazole, hexaconazole, cyroconazole or epoxiconazole.

In an embodiment, the third fungicide may be a Quinone outside (Qo) inhibitor fungicide selected from azoxystrobin, coumoxystrobin, enoxastrobin, flufenoxystrobin, picoxystrobin, pyraoxystrobin, mandestrobin, pyraclostrobin, pyrametostrobin, triclopyricarb, kresoxim-methyl, dimoxystrobin, fenaminostrobin, metominostrobin, trifloxystrobin, famoxadone, fluoxastrobin, fenamidone, pyribencarb and mixtures thereof.

In an embodiment, the Quinone outside (Qo) inhibitor fungicide may be selected from azoxystrobin, picoxystrobin, kresoxim-methyl, pyraclostrobin and trifloxystrobin.

In an embodiment of the combinations of the present invention, the preferred succinate dehydrogenase inhibitor fungicide is isopyrazam.

In an embodiment, the combinations of the present invention include the following preferred combinations:

S No.	I	II	III	IV
1	Mancozeb	Isopyrazam	Cyproconazole	-

2	Mancozeb	Isopyrazam	Difenoconazole	-
3	Mancozeb	Isopyrazam	Epoxiconazole	-
4	Mancozeb	Isopyrazam	Hexaconazole	-
5	Mancozeb	Isopyrazam	Tebuconazole	-
6	Mancozeb	Isopyrazam	Tetraconazole	-
7	Mancozeb	Isopyrazam	Prothioconazole	-
8	Mancozeb	Isopyrazam	-	Azoxystrobin
9	Mancozeb	Isopyrazam	-	Picoxystrobin
10	Mancozeb	Isopyrazam	-	Pyraclostrobin
11	Mancozeb	Isopyrazam	-	Kresoxim-methyl
12	Mancozeb	Isopyrazam	-	Trifloxystrobin
13	Mancozeb	Isopyrazam	Cyproconazole	Azoxystrobin
14	Mancozeb	Isopyrazam	Cyproconazole	Picoxystrobin
15	Mancozeb	Isopyrazam	Cyproconazole	Pyraclostrobin
16	Mancozeb	Isopyrazam	Cyproconazole	Kresoxim-methyl
17	Mancozeb	Isopyrazam	Cyproconazole	Trifloxystrobin
18	Mancozeb	Isopyrazam	Difenoconazole	Azoxystrobin
19	Mancozeb	Isopyrazam	Difenoconazole	Picoxystrobin
20	Mancozeb	Isopyrazam	Difenoconazole	Pyraclostrobin
21	Mancozeb	Isopyrazam	Difenoconazole	Kresoxim-methyl
22	Mancozeb	Isopyrazam	Difenoconazole	Trifloxystrobin
23	Mancozeb	Isopyrazam	Epoxiconazole	Azoxystrobin

24	Mancozeb	Isopyrazam	Epoxiconazole	Picoxystrobin
25	Mancozeb	Isopyrazam	Epoxiconazole	Pyraclostrobin
26	Mancozeb	Isopyrazam	Epoxiconazole	Kresoxim-methyl
27	Mancozeb	Isopyrazam	Epoxiconazole	Trifloxystrobin
28	Mancozeb	Isopyrazam	Hexaconazole	Azoxystrobin
29	Mancozeb	Isopyrazam	Hexaconazole	Picoxystrobin
30	Mancozeb	Isopyrazam	Hexaconazole	Pyraclostrobin
31	Mancozeb	Isopyrazam	Hexaconazole	Kresoxim-methyl
32	Mancozeb	Isopyrazam	Hexaconazole	Trifloxystrobin
33	Mancozeb	Isopyrazam	Tebuconazole	Azoxystrobin
34	Mancozeb	Isopyrazam	Tebuconazole	Picoxystrobin
35	Mancozeb	Isopyrazam	Tebuconazole	Pyraclostrobin
36	Mancozeb	Isopyrazam	Tebuconazole	Kresoxim-methyl
37	Mancozeb	Isopyrazam	Tebuconazole	Trifloxystrobin
38	Mancozeb	Isopyrazam	Tetraconazole	Azoxystrobin
39	Mancozeb	Isopyrazam	Tetraconazole	Picoxystrobin
40	Mancozeb	Isopyrazam	Tetraconazole	Pyraclostrobin
41	Mancozeb	Isopyrazam	Tetraconazole	Kresoxim-methyl
42	Mancozeb	Isopyrazam	Tetraconazole	Trifloxystrobin
43	Mancozeb	Isopyrazam	Prothioconazole	Azoxystrobin
44	Mancozeb	Isopyrazam	Prothioconazole	Picoxystrobin

45	Mancozeb	Isopyrazam	Prothioconazole	Pyraclostrobin
46	Mancozeb	Isopyrazam	Prothioconazole	Kresoxim-methyl
47	Mancozeb	Isopyrazam	Prothioconazole	Trifloxystrobin

In an embodiment of the combinations of the present invention, the preferred succinate dehydrogenase inhibitor fungicide is Benzovindiflupyr.

In an embodiment, the combinations of the present invention include the following preferred combinations:

S No.	I	II	III	IV
48	Mancozeb	Benzovindiflupyr	Cyproconazole	-
49	Mancozeb	Benzovindiflupyr	Difenoconazole	-
50	Mancozeb	Benzovindiflupyr	Epoxiconazole	-
51	Mancozeb	Benzovindiflupyr	Hexaconazole	-
52	Mancozeb	Benzovindiflupyr	Tebuconazole	-
53	Mancozeb	Benzovindiflupyr	Tetraconazole	-
54	Mancozeb	Benzovindiflupyr	Prothioconazole	-
55	Mancozeb	Benzovindiflupyr	-	Azoxystrobin
56	Mancozeb	Benzovindiflupyr	-	Picoxystrobin
57	Mancozeb	Benzovindiflupyr	-	Pyraclostrobin
58	Mancozeb	Benzovindiflupyr	-	Kresoxim-methyl
59	Mancozeb	Benzovindiflupyr	-	Trifloxystrobin
60	Mancozeb	Benzovindiflupyr	Cyproconazole	Azoxystrobin

61	Mancozeb	Benzovindiflupyr	Cyproconazole	Picoxystrobin
62	Mancozeb	Benzovindiflupyr	Cyproconazole	Pyraclostrobin
63	Mancozeb	Benzovindiflupyr	Cyproconazole	Kresoxim-methyl
64	Mancozeb	Benzovindiflupyr	Cyproconazole	Trifloxystrobin
65	Mancozeb	Benzovindiflupyr	Difenoconazole	Azoxystrobin
66	Mancozeb	Benzovindiflupyr	Difenoconazole	Picoxystrobin
67	Mancozeb	Benzovindiflupyr	Difenoconazole	Pyraclostrobin
68	Mancozeb	Benzovindiflupyr	Difenoconazole	Kresoxim-methyl
69	Mancozeb	Benzovindiflupyr	Difenoconazole	Trifloxystrobin
70	Mancozeb	Benzovindiflupyr	Epoxiconazole	Azoxystrobin
71	Mancozeb	Benzovindiflupyr	Epoxiconazole	Picoxystrobin
72	Mancozeb	Benzovindiflupyr	Epoxiconazole	Pyraclostrobin
73	Mancozeb	Benzovindiflupyr	Epoxiconazole	Kresoxim-methyl
74	Mancozeb	Benzovindiflupyr	Epoxiconazole	Trifloxystrobin
75	Mancozeb	Benzovindiflupyr	Hexaconazole	Azoxystrobin
76	Mancozeb	Benzovindiflupyr	Hexaconazole	Picoxystrobin
77	Mancozeb	Benzovindiflupyr	Hexaconazole	Pyraclostrobin
78	Mancozeb	Benzovindiflupyr	Hexaconazole	Kresoxim-methyl
79	Mancozeb	Benzovindiflupyr	Hexaconazole	Trifloxystrobin
80	Mancozeb	Benzovindiflupyr	Tebuconazole	Azoxystrobin
81	Mancozeb	Benzovindiflupyr	Tebuconazole	Picoxystrobin

82	Mancozeb	Benzovindiflupyr	Tebuconazole	Pyraclostrobin
83	Mancozeb	Benzovindiflupyr	Tebuconazole	Kresoxim-methyl
84	Mancozeb	Benzovindiflupyr	Tebuconazole	Trifloxystrobin
85	Mancozeb	Benzovindiflupyr	Tetraconazole	Azoxystrobin
86	Mancozeb	Benzovindiflupyr	Tetraconazole	Picoxystrobin
87	Mancozeb	Benzovindiflupyr	Tetraconazole	Pyraclostrobin
88	Mancozeb	Benzovindiflupyr	Tetraconazole	Kresoxim-methyl
89	Mancozeb	Benzovindiflupyr	Tetraconazole	Trifloxystrobin
90	Mancozeb	Benzovindiflupyr	Prothioconazole	Azoxystrobin
91	Mancozeb	Benzovindiflupyr	Prothioconazole	Picoxystrobin
92	Mancozeb	Benzovindiflupyr	Prothioconazole	Pyraclostrobin
93	Mancozeb	Benzovindiflupyr	Prothioconazole	Kresoxim-methyl
94	Mancozeb	Benzovindiflupyr	Prothioconazole	Trifloxystrobin

In an embodiment of the combinations of the present invention, the preferred succinate dehydrogenase inhibitor fungicide is Penthiopyrad.

In an embodiment, the combinations of the present invention include the following preferred combinations:

S No.	I	II	III	IV
95	Mancozeb	Penthiopyrad	Cyproconazole	-
96	Mancozeb	Penthiopyrad	Difenoconazole	-

97	Mancozeb	Penthiopyrad	Epoxiconazole	-
98	Mancozeb	Penthiopyrad	Hexaconazole	-
99	Mancozeb	Penthiopyrad	Tebuconazole	-
100	Mancozeb	Penthiopyrad	Tetraconazole	-
101	Mancozeb	Penthiopyrad	Prothioconazole	-
102	Mancozeb	Penthiopyrad	-	Azoxystrobin
103	Mancozeb	Penthiopyrad	-	Picoxystrobin
104	Mancozeb	Penthiopyrad	-	Pyraclostrobin
105	Mancozeb	Penthiopyrad	-	Kresoxim-methyl
106	Mancozeb	Penthiopyrad	-	Trifloxystrobin
107	Mancozeb	Penthiopyrad	Cyproconazole	Azoxystrobin
108	Mancozeb	Penthiopyrad	Cyproconazole	Picoxystrobin
109	Mancozeb	Penthiopyrad	Cyproconazole	Pyraclostrobin
110	Mancozeb	Penthiopyrad	Cyproconazole	Kresoxim-methyl
111	Mancozeb	Penthiopyrad	Cyproconazole	Trifloxystrobin
112	Mancozeb	Penthiopyrad	Difenoconazole	Azoxystrobin
113	Mancozeb	Penthiopyrad	Difenoconazole	Picoxystrobin
114	Mancozeb	Penthiopyrad	Difenoconazole	Pyraclostrobin
115	Mancozeb	Penthiopyrad	Difenoconazole	Kresoxim-methyl
116	Mancozeb	Penthiopyrad	Difenoconazole	Trifloxystrobin
117	Mancozeb	Penthiopyrad	Epoxiconazole	Azoxystrobin
118	Mancozeb	Penthiopyrad	Epoxiconazole	Picoxystrobin

119	Mancozeb	Penthiopyrad	Epoxiconazole	Pyraclostrobin
120	Mancozeb	Penthiopyrad	Epoxiconazole	Kresoxim-methyl
121	Mancozeb	Penthiopyrad	Epoxiconazole	Trifloxystrobin
122	Mancozeb	Penthiopyrad	Hexaconazole	Azoxystrobin
123	Mancozeb	Penthiopyrad	Hexaconazole	Picoxystrobin
124	Mancozeb	Penthiopyrad	Hexaconazole	Pyraclostrobin
125	Mancozeb	Penthiopyrad	Hexaconazole	Kresoxim-methyl
126	Mancozeb	Penthiopyrad	Hexaconazole	Trifloxystrobin
127	Mancozeb	Penthiopyrad	Tebuconazole	Azoxystrobin
128	Mancozeb	Penthiopyrad	Tebuconazole	Picoxystrobin
129	Mancozeb	Penthiopyrad	Tebuconazole	Pyraclostrobin
130	Mancozeb	Penthiopyrad	Tebuconazole	Kresoxim-methyl
131	Mancozeb	Penthiopyrad	Tebuconazole	Trifloxystrobin
132	Mancozeb	Penthiopyrad	Tetraconazole	Azoxystrobin
133	Mancozeb	Penthiopyrad	Tetraconazole	Picoxystrobin
134	Mancozeb	Penthiopyrad	Tetraconazole	Pyraclostrobin
135	Mancozeb	Penthiopyrad	Tetraconazole	Kresoxim-methyl
136	Mancozeb	Penthiopyrad	Tetraconazole	Trifloxystrobin
137	Mancozeb	Penthiopyrad	Prothioconazole	Azoxystrobin
138	Mancozeb	Penthiopyrad	Prothioconazole	Picoxystrobin
139	Mancozeb	Penthiopyrad	Prothioconazole	Pyraclostrobin

140	Mancozeb	Penthiopyrad	Prothioconazole	Kresoxim-methyl
141	Mancozeb	Penthiopyrad	Prothioconazole	Trifloxystrobin

In an embodiment of the combinations of the present invention, the preferred succinate dehydrogenase inhibitor fungicide is boscalid.

In an embodiment, the combinations of the present invention include the following preferred combinations:

S No.	I	II	III	IV
142	Mancozeb	Boscalid	Cyproconazole	-
143	Mancozeb	Boscalid	Difenoconazole	-
144	Mancozeb	Boscalid	Epoxiconazole	-
145	Mancozeb	Boscalid	Hexaconazole	-
146	Mancozeb	Boscalid	Tebuconazole	-
147	Mancozeb	Boscalid	Tetraconazole	-
148	Mancozeb	Boscalid	Prothioconazole	-
149	Mancozeb	Boscalid	-	Azoxystrobin
150	Mancozeb	Boscalid	-	Picoxystrobin
151	Mancozeb	Boscalid	-	Pyraclostrobin
152	Mancozeb	Boscalid	-	Kresoxim-methyl
153	Mancozeb	Boscalid	-	Trifloxystrobin
154	Mancozeb	Boscalid	Cyproconazole	Azoxystrobin
155	Mancozeb	Boscalid	Cyproconazole	Picoxystrobin

156	Mancozeb	Boscalid	Cyproconazole	Pyraclostrobin
157	Mancozeb	Boscalid	Cyproconazole	Kresoxim-methyl
158	Mancozeb	Boscalid	Cyproconazole	Trifloxystrobin
159	Mancozeb	Boscalid	Difenoconazole	Azoxystrobin
160	Mancozeb	Boscalid	Difenoconazole	Picoxystrobin
161	Mancozeb	Boscalid	Difenoconazole	Pyraclostrobin
162	Mancozeb	Boscalid	Difenoconazole	Kresoxim-methyl
163	Mancozeb	Boscalid	Difenoconazole	Trifloxystrobin
164	Mancozeb	Boscalid	Epoxiconazole	Azoxystrobin
165	Mancozeb	Boscalid	Epoxiconazole	Picoxystrobin
166	Mancozeb	Boscalid	Epoxiconazole	Pyraclostrobin
167	Mancozeb	Boscalid	Epoxiconazole	Kresoxim-methyl
168	Mancozeb	Boscalid	Epoxiconazole	Trifloxystrobin
169	Mancozeb	Boscalid	Hexaconazole	Azoxystrobin
170	Mancozeb	Boscalid	Hexaconazole	Picoxystrobin
171	Mancozeb	Boscalid	Hexaconazole	Pyraclostrobin
172	Mancozeb	Boscalid	Hexaconazole	Kresoxim-methyl
173	Mancozeb	Boscalid	Hexaconazole	Trifloxystrobin
174	Mancozeb	Boscalid	Tebuconazole	Azoxystrobin
175	Mancozeb	Boscalid	Tebuconazole	Picoxystrobin
176	Mancozeb	Boscalid	Tebuconazole	Pyraclostrobin

177	Mancozeb	Boscalid	Tebuconazole	Kresoxim-methyl
178	Mancozeb	Boscalid	Tebuconazole	Trifloxystrobin
179	Mancozeb	Boscalid	Tetraconazole	Azoxystrobin
180	Mancozeb	Boscalid	Tetraconazole	Picoxystrobin
181	Mancozeb	Boscalid	Tetraconazole	Pyraclostrobin
182	Mancozeb	Boscalid	Tetraconazole	Kresoxim-methyl
183	Mancozeb	Boscalid	Tetraconazole	Trifloxystrobin
184	Mancozeb	Boscalid	Prothioconazole	Azoxystrobin
185	Mancozeb	Boscalid	Prothioconazole	Picoxystrobin
186	Mancozeb	Boscalid	Prothioconazole	Pyraclostrobin
187	Mancozeb	Boscalid	Prothioconazole	Kresoxim-methyl
188	Mancozeb	Boscalid	Prothioconazole	Trifloxystrobin

In an embodiment of the combinations of the present invention, the preferred succinate dehydrogenase inhibitor fungicide is IR9792. IR9792 is a SDHI fungicide, developed by Isagro, with the proposed common name fluindapyr.

In an embodiment, the combinations of the present invention include the following preferred combinations:

S No.	I	II	III	IV
189	Mancozeb	IR9792	Cyproconazole	-

190	Mancozeb	IR9792	Difenoconazole	-
191	Mancozeb	IR9792	Epoxiconazole	-
192	Mancozeb	IR9792	Hexaconazole	-
193	Mancozeb	IR9792	Tebuconazole	-
194	Mancozeb	IR9792	Tetraconazole	-
195	Mancozeb	IR9792	Prothioconazole	-
196	Mancozeb	IR9792	-	Azoxystrobin
197	Mancozeb	IR9792	-	Picoxystrobin
198	Mancozeb	IR9792	-	Pyraclostrobin
199	Mancozeb	IR9792	-	Kresoxim-methyl
200	Mancozeb	IR9792	-	Trifloxystrobin
201	Mancozeb	IR9792	Cyproconazole	Azoxystrobin
202	Mancozeb	IR9792	Cyproconazole	Picoxystrobin
203	Mancozeb	IR9792	Cyproconazole	Pyraclostrobin
204	Mancozeb	IR9792	Cyproconazole	Kresoxim-methyl
205	Mancozeb	IR9792	Cyproconazole	Trifloxystrobin
206	Mancozeb	IR9792	Difenoconazole	Azoxystrobin
207	Mancozeb	IR9792	Difenoconazole	Picoxystrobin
208	Mancozeb	IR9792	Difenoconazole	Pyraclostrobin
209	Mancozeb	IR9792	Difenoconazole	Kresoxim-methyl
210	Mancozeb	IR9792	Difenoconazole	Trifloxystrobin
211	Mancozeb	IR9792	Epoxiconazole	Azoxystrobin

212	Mancozeb	IR9792	Epoxiconazole	Picoxystrobin
213	Mancozeb	IR9792	Epoxiconazole	Pyraclostrobin
214	Mancozeb	IR9792	Epoxiconazole	Kresoxim-methyl
215	Mancozeb	IR9792	Epoxiconazole	Trifloxystrobin
216	Mancozeb	IR9792	Hexaconazole	Azoxystrobin
217	Mancozeb	IR9792	Hexaconazole	Picoxystrobin
218	Mancozeb	IR9792	Hexaconazole	Pyraclostrobin
219	Mancozeb	IR9792	Hexaconazole	Kresoxim-methyl
220	Mancozeb	IR9792	Hexaconazole	Trifloxystrobin
221	Mancozeb	IR9792	Tebuconazole	Azoxystrobin
222	Mancozeb	IR9792	Tebuconazole	Picoxystrobin
223	Mancozeb	IR9792	Tebuconazole	Pyraclostrobin
224	Mancozeb	IR9792	Tebuconazole	Kresoxim-methyl
225	Mancozeb	IR9792	Tebuconazole	Trifloxystrobin
226	Mancozeb	IR9792	Tetraconazole	Azoxystrobin
227	Mancozeb	IR9792	Tetraconazole	Picoxystrobin
228	Mancozeb	IR9792	Tetraconazole	Pyraclostrobin
229	Mancozeb	IR9792	Tetraconazole	Kresoxim-methyl
230	Mancozeb	IR9792	Tetraconazole	Trifloxystrobin
231	Mancozeb	IR9792	Prothioconazole	Azoxystrobin
232	Mancozeb	IR9792	Prothioconazole	Picoxystrobin

233	Mancozeb	IR9792	Prothioconazole	Pyraclostrobin
234	Mancozeb	IR9792	Prothioconazole	Kresoxim-methyl
235	Mancozeb	IR9792	Prothioconazole	Trifloxystrobin

In an embodiment of the combinations of the present invention, the preferred succinate dehydrogenase inhibitor fungicide is Bixafen.

In an embodiment, the combinations of the present invention include the following preferred combinations:

S No.	I	II	III	IV
236	Mancozeb	Bixafen	Cyproconazole	-
237	Mancozeb	Bixafen	Difenoconazole	-
238	Mancozeb	Bixafen	Epoxiconazole	-
239	Mancozeb	Bixafen	Hexaconazole	-
240	Mancozeb	Bixafen	Tebuconazole	-
241	Mancozeb	Bixafen	Tetraconazole	-
242	Mancozeb	Bixafen	Prothioconazole	-
243	Mancozeb	Bixafen	-	Azoxystrobin
244	Mancozeb	Bixafen	-	Picoxystrobin
245	Mancozeb	Bixafen	-	Pyraclostrobin
246	Mancozeb	Bixafen	-	Kresoxim-methyl
247	Mancozeb	Bixafen	-	Trifloxystrobin
248	Mancozeb	Bixafen	Cyproconazole	Azoxystrobin

249	Mancozeb	Bixafen	Cyproconazole	Picoxystrobin
250	Mancozeb	Bixafen	Cyproconazole	Pyraclostrobin
251	Mancozeb	Bixafen	Cyproconazole	Kresoxim-methyl
252	Mancozeb	Bixafen	Cyproconazole	Trifloxystrobin
253	Mancozeb	Bixafen	Difenoconazole	Azoxystrobin
254	Mancozeb	Bixafen	Difenoconazole	Picoxystrobin
255	Mancozeb	Bixafen	Difenoconazole	Pyraclostrobin
256	Mancozeb	Bixafen	Difenoconazole	Kresoxim-methyl
257	Mancozeb	Bixafen	Difenoconazole	Trifloxystrobin
258	Mancozeb	Bixafen	Epoxiconazole	Azoxystrobin
259	Mancozeb	Bixafen	Epoxiconazole	Picoxystrobin
260	Mancozeb	Bixafen	Epoxiconazole	Pyraclostrobin
261	Mancozeb	Bixafen	Epoxiconazole	Kresoxim-methyl
262	Mancozeb	Bixafen	Epoxiconazole	Trifloxystrobin
263	Mancozeb	Bixafen	Hexaconazole	Azoxystrobin
264	Mancozeb	Bixafen	Hexaconazole	Picoxystrobin
265	Mancozeb	Bixafen	Hexaconazole	Pyraclostrobin
266	Mancozeb	Bixafen	Hexaconazole	Kresoxim-methyl
267	Mancozeb	Bixafen	Hexaconazole	Trifloxystrobin
268	Mancozeb	Bixafen	Tebuconazole	Azoxystrobin
269	Mancozeb	Bixafen	Tebuconazole	Picoxystrobin

270	Mancozeb	Bixafen	Tebuconazole	Pyraclostrobin
271	Mancozeb	Bixafen	Tebuconazole	Kresoxim-methyl
272	Mancozeb	Bixafen	Tebuconazole	Trifloxystrobin
273	Mancozeb	Bixafen	Tetraconazole	Azoxystrobin
274	Mancozeb	Bixafen	Tetraconazole	Picoxystrobin
275	Mancozeb	Bixafen	Tetraconazole	Pyraclostrobin
276	Mancozeb	Bixafen	Tetraconazole	Kresoxim-methyl
277	Mancozeb	Bixafen	Tetraconazole	Trifloxystrobin
278	Mancozeb	Bixafen	Prothioconazole	Azoxystrobin
279	Mancozeb	Bixafen	Prothioconazole	Picoxystrobin
280	Mancozeb	Bixafen	Prothioconazole	Pyraclostrobin
281	Mancozeb	Bixafen	Prothioconazole	Kresoxim-methyl
282	Mancozeb	Bixafen	Prothioconazole	Trifloxystrobin

In an embodiment of the combinations of the present invention, the preferred succinate dehydrogenase inhibitor fungicide is Fluxapyroxad.

In an embodiment, the combinations of the present invention include the following preferred combinations:

S No.	I	II	III	IV
283	Mancozeb	Fluxapyroxad	Cyproconazole	-
284	Mancozeb	Fluxapyroxad	Difenoconazole	-

285	Mancozeb	Fluxapyroxad	Epoxiconazole	-
286	Mancozeb	Fluxapyroxad	Hexaconazole	-
287	Mancozeb	Fluxapyroxad	Tebuconazole	-
288	Mancozeb	Fluxapyroxad	Tetraconazole	-
289	Mancozeb	Fluxapyroxad	Prothioconazole	-
290	Mancozeb	Fluxapyroxad	-	Azoxystrobin
291	Mancozeb	Fluxapyroxad	-	Picoxystrobin
292	Mancozeb	Fluxapyroxad	-	Pyraclostrobin
293	Mancozeb	Fluxapyroxad	-	Kresoxim-methyl
294	Mancozeb	Fluxapyroxad	-	Trifloxystrobin
295	Mancozeb	Fluxapyroxad	Cyproconazole	Azoxystrobin
296	Mancozeb	Fluxapyroxad	Cyproconazole	Picoxystrobin
297	Mancozeb	Fluxapyroxad	Cyproconazole	Pyraclostrobin
298	Mancozeb	Fluxapyroxad	Cyproconazole	Kresoxim-methyl
299	Mancozeb	Fluxapyroxad	Cyproconazole	Trifloxystrobin
300	Mancozeb	Fluxapyroxad	Difenoconazole	Azoxystrobin
301	Mancozeb	Fluxapyroxad	Difenoconazole	Picoxystrobin
302	Mancozeb	Fluxapyroxad	Difenoconazole	Pyraclostrobin
303	Mancozeb	Fluxapyroxad	Difenoconazole	Kresoxim-methyl
304	Mancozeb	Fluxapyroxad	Difenoconazole	Trifloxystrobin
305	Mancozeb	Fluxapyroxad	Epoxiconazole	Azoxystrobin
306	Mancozeb	Fluxapyroxad	Epoxiconazole	Picoxystrobin

307	Mancozeb	Fluxapyroxad	Epoxiconazole	Pyraclostrobin
308	Mancozeb	Fluxapyroxad	Epoxiconazole	Kresoxim-methyl
309	Mancozeb	Fluxapyroxad	Epoxiconazole	Trifloxystrobin
310	Mancozeb	Fluxapyroxad	Hexaconazole	Azoxystrobin
311	Mancozeb	Fluxapyroxad	Hexaconazole	Picoxystrobin
312	Mancozeb	Fluxapyroxad	Hexaconazole	Pyraclostrobin
313	Mancozeb	Fluxapyroxad	Hexaconazole	Kresoxim-methyl
314	Mancozeb	Fluxapyroxad	Hexaconazole	Trifloxystrobin
315	Mancozeb	Fluxapyroxad	Tebuconazole	Azoxystrobin
316	Mancozeb	Fluxapyroxad	Tebuconazole	Picoxystrobin
317	Mancozeb	Fluxapyroxad	Tebuconazole	Pyraclostrobin
318	Mancozeb	Fluxapyroxad	Tebuconazole	Kresoxim-methyl
319	Mancozeb	Fluxapyroxad	Tebuconazole	Trifloxystrobin
320	Mancozeb	Fluxapyroxad	Tetraconazole	Azoxystrobin
321	Mancozeb	Fluxapyroxad	Tetraconazole	Picoxystrobin
322	Mancozeb	Fluxapyroxad	Tetraconazole	Pyraclostrobin
323	Mancozeb	Fluxapyroxad	Tetraconazole	Kresoxim-methyl
324	Mancozeb	Fluxapyroxad	Tetraconazole	Trifloxystrobin
325	Mancozeb	Fluxapyroxad	Prothioconazole	Azoxystrobin
326	Mancozeb	Fluxapyroxad	Prothioconazole	Picoxystrobin
327	Mancozeb	Fluxapyroxad	Prothioconazole	Pyraclostrobin

328	Mancozeb	Fluxapyroxad	Prothioconazole	Kresoxim-methyl
329	Mancozeb	Fluxapyroxad	Prothioconazole	Trifloxystrobin

In an embodiment of the combinations of the present invention, the preferred succinate dehydrogenase inhibitor fungicide is Furametpyr.

In an embodiment, the combinations of the present invention include the following preferred combinations:

S No.	I	II	III	IV
330	Mancozeb	Furametpyr	Cyproconazole	-
331	Mancozeb	Furametpyr	Difenoconazole	-
332	Mancozeb	Furametpyr	Epoxiconazole	-
333	Mancozeb	Furametpyr	Hexaconazole	-
334	Mancozeb	Furametpyr	Tebuconazole	-
335	Mancozeb	Furametpyr	Tetraconazole	-
336	Mancozeb	Furametpyr	Prothioconazole	-
337	Mancozeb	Furametpyr	-	Azoxystrobin
338	Mancozeb	Furametpyr	-	Picoxystrobin
339	Mancozeb	Furametpyr	-	Pyraclostrobin
340	Mancozeb	Furametpyr	-	Kresoxim-methyl
341	Mancozeb	Furametpyr	-	Trifloxystrobin
342	Mancozeb	Furametpyr	Cyproconazole	Azoxystrobin
343	Mancozeb	Furametpyr	Cyproconazole	Picoxystrobin

344	Mancozeb	Furametpyr	Cyproconazole	Pyraclostrobin
345	Mancozeb	Furametpyr	Cyproconazole	Kresoxim-methyl
346	Mancozeb	Furametpyr	Cyproconazole	Trifloxystrobin
347	Mancozeb	Furametpyr	Difenoconazole	Azoxystrobin
348	Mancozeb	Furametpyr	Difenoconazole	Picoxystrobin
349	Mancozeb	Furametpyr	Difenoconazole	Pyraclostrobin
350	Mancozeb	Furametpyr	Difenoconazole	Kresoxim-methyl
351	Mancozeb	Furametpyr	Difenoconazole	Trifloxystrobin
352	Mancozeb	Furametpyr	Epoxiconazole	Azoxystrobin
353	Mancozeb	Furametpyr	Epoxiconazole	Picoxystrobin
354	Mancozeb	Furametpyr	Epoxiconazole	Pyraclostrobin
355	Mancozeb	Furametpyr	Epoxiconazole	Kresoxim-methyl
356	Mancozeb	Furametpyr	Epoxiconazole	Trifloxystrobin
357	Mancozeb	Furametpyr	Hexaconazole	Azoxystrobin
358	Mancozeb	Furametpyr	Hexaconazole	Picoxystrobin
359	Mancozeb	Furametpyr	Hexaconazole	Pyraclostrobin
360	Mancozeb	Furametpyr	Hexaconazole	Kresoxim-methyl
361	Mancozeb	Furametpyr	Hexaconazole	Trifloxystrobin
362	Mancozeb	Furametpyr	Tebuconazole	Azoxystrobin
363	Mancozeb	Furametpyr	Tebuconazole	Picoxystrobin
364	Mancozeb	Furametpyr	Tebuconazole	Pyraclostrobin

365	Mancozeb	Furametpyr	Tebuconazole	Kresoxim-methyl
366	Mancozeb	Furametpyr	Tebuconazole	Trifloxystrobin
367	Mancozeb	Furametpyr	Tetraconazole	Azoxystrobin
368	Mancozeb	Furametpyr	Tetraconazole	Picoxystrobin
369	Mancozeb	Furametpyr	Tetraconazole	Pyraclostrobin
370	Mancozeb	Furametpyr	Tetraconazole	Kresoxim-methyl
371	Mancozeb	Furametpyr	Tetraconazole	Trifloxystrobin
372	Mancozeb	Furametpyr	Prothioconazole	Azoxystrobin
273	Mancozeb	Furametpyr	Prothioconazole	Picoxystrobin
374	Mancozeb	Furametpyr	Prothioconazole	Pyraclostrobin
375	Mancozeb	Furametpyr	Prothioconazole	Kresoxim-methyl
376	Mancozeb	Furametpyr	Prothioconazole	Trifloxystrobin

In an embodiment of the combinations of the present invention, the preferred succinate dehydrogenase inhibitor fungicide is Penflufen.

In an embodiment, the combinations of the present invention include the following preferred combinations:

S No.	I	II	III	IV
377	Mancozeb	Penflufen	Cyproconazole	-
378	Mancozeb	Penflufen	Difenoconazole	-
379	Mancozeb	Penflufen	Epoxiconazole	-

380	Mancozeb	Penflufen	Hexaconazole	-
381	Mancozeb	Penflufen	Tebuconazole	-
382	Mancozeb	Penflufen	Tetraconazole	-
383	Mancozeb	Penflufen	Prothioconazole	-
384	Mancozeb	Penflufen	-	Azoxystrobin
385	Mancozeb	Penflufen	-	Picoxystrobin
386	Mancozeb	Penflufen	-	Pyraclostrobin
387	Mancozeb	Penflufen	-	Kresoxim-methyl
388	Mancozeb	Penflufen	-	Trifloxystrobin
389	Mancozeb	Penflufen	Cyproconazole	Azoxystrobin
390	Mancozeb	Penflufen	Cyproconazole	Picoxystrobin
391	Mancozeb	Penflufen	Cyproconazole	Pyraclostrobin
392	Mancozeb	Penflufen	Cyproconazole	Kresoxim-methyl
393	Mancozeb	Penflufen	Cyproconazole	Trifloxystrobin
394	Mancozeb	Penflufen	Difenoconazole	Azoxystrobin
395	Mancozeb	Penflufen	Difenoconazole	Picoxystrobin
396	Mancozeb	Penflufen	Difenoconazole	Pyraclostrobin
397	Mancozeb	Penflufen	Difenoconazole	Kresoxim-methyl
398	Mancozeb	Penflufen	Difenoconazole	Trifloxystrobin
399	Mancozeb	Penflufen	Epoxiconazole	Azoxystrobin
400	Mancozeb	Penflufen	Epoxiconazole	Picoxystrobin
401	Mancozeb	Penflufen	Epoxiconazole	Pyraclostrobin

402	Mancozeb	Penflufen	Epoxiconazole	Kresoxim-methyl
403	Mancozeb	Penflufen	Epoxiconazole	Trifloxystrobin
404	Mancozeb	Penflufen	Hexaconazole	Azoxystrobin
405	Mancozeb	Penflufen	Hexaconazole	Picoxystrobin
406	Mancozeb	Penflufen	Hexaconazole	Pyraclostrobin
407	Mancozeb	Penflufen	Hexaconazole	Kresoxim-methyl
408	Mancozeb	Penflufen	Hexaconazole	Trifloxystrobin
409	Mancozeb	Penflufen	Tebuconazole	Azoxystrobin
410	Mancozeb	Penflufen	Tebuconazole	Picoxystrobin
411	Mancozeb	Penflufen	Tebuconazole	Pyraclostrobin
412	Mancozeb	Penflufen	Tebuconazole	Kresoxim-methyl
413	Mancozeb	Penflufen	Tebuconazole	Trifloxystrobin
414	Mancozeb	Penflufen	Tetraconazole	Azoxystrobin
415	Mancozeb	Penflufen	Tetraconazole	Picoxystrobin
416	Mancozeb	Penflufen	Tetraconazole	Pyraclostrobin
417	Mancozeb	Penflufen	Tetraconazole	Kresoxim-methyl
418	Mancozeb	Penflufen	Tetraconazole	Trifloxystrobin
419	Mancozeb	Penflufen	Prothioconazole	Azoxystrobin
420	Mancozeb	Penflufen	Prothioconazole	Picoxystrobin
421	Mancozeb	Penflufen	Prothioconazole	Pyraclostrobin

422	Mancozeb	Penflufen	Prothioconazole	Kresoxim-methyl
423	Mancozeb	Penflufen	Prothioconazole	Trifloxystrobin

In an embodiment of the combinations of the present invention, the preferred succinate dehydrogenase inhibitor fungicide is Sedaxane.

In an embodiment, the combinations of the present invention include the following preferred combinations:

S No.	I	II	III	IV
424	Mancozeb	Sedaxane	Cyproconazole	-
425	Mancozeb	Sedaxane	Difenoconazole	-
426	Mancozeb	Sedaxane	Epoxiconazole	-
427	Mancozeb	Sedaxane	Hexaconazole	-
428	Mancozeb	Sedaxane	Tebuconazole	-
429	Mancozeb	Sedaxane	Tetraconazole	-
430	Mancozeb	Sedaxane	Prothioconazole	-
431	Mancozeb	Sedaxane	-	Azoxystrobin
432	Mancozeb	Sedaxane	-	Picoxystrobin
433	Mancozeb	Sedaxane	-	Pyraclostrobin
434	Mancozeb	Sedaxane	-	Kresoxim-methyl
435	Mancozeb	Sedaxane	-	Trifloxystrobin
436	Mancozeb	Sedaxane	Cyproconazole	Azoxystrobin
437	Mancozeb	Sedaxane	Cyproconazole	Picoxystrobin

438	Mancozeb	Sedaxane	Cyproconazole	Pyraclostrobin
439	Mancozeb	Sedaxane	Cyproconazole	Kresoxim-methyl
440	Mancozeb	Sedaxane	Cyproconazole	Trifloxystrobin
441	Mancozeb	Sedaxane	Difenoconazole	Azoxystrobin
442	Mancozeb	Sedaxane	Difenoconazole	Picoxystrobin
443	Mancozeb	Sedaxane	Difenoconazole	Pyraclostrobin
444	Mancozeb	Sedaxane	Difenoconazole	Kresoxim-methyl
445	Mancozeb	Sedaxane	Difenoconazole	Trifloxystrobin
446	Mancozeb	Sedaxane	Epoxiconazole	Azoxystrobin
447	Mancozeb	Sedaxane	Epoxiconazole	Picoxystrobin
448	Mancozeb	Sedaxane	Epoxiconazole	Pyraclostrobin
449	Mancozeb	Sedaxane	Epoxiconazole	Kresoxim-methyl
450	Mancozeb	Sedaxane	Epoxiconazole	Trifloxystrobin
451	Mancozeb	Sedaxane	Hexaconazole	Azoxystrobin
452	Mancozeb	Sedaxane	Hexaconazole	Picoxystrobin
453	Mancozeb	Sedaxane	Hexaconazole	Pyraclostrobin
454	Mancozeb	Sedaxane	Hexaconazole	Kresoxim-methyl
455	Mancozeb	Sedaxane	Hexaconazole	Trifloxystrobin
456	Mancozeb	Sedaxane	Tebuconazole	Azoxystrobin
457	Mancozeb	Sedaxane	Tebuconazole	Picoxystrobin
458	Mancozeb	Sedaxane	Tebuconazole	Pyraclostrobin

459	Mancozeb	Sedaxane	Tebuconazole	Kresoxim-methyl
460	Mancozeb	Sedaxane	Tebuconazole	Trifloxystrobin
461	Mancozeb	Sedaxane	Tetraconazole	Azoxystrobin
462	Mancozeb	Sedaxane	Tetraconazole	Picoxystrobin
463	Mancozeb	Sedaxane	Tetraconazole	Pyraclostrobin
464	Mancozeb	Sedaxane	Tetraconazole	Kresoxim-methyl
465	Mancozeb	Sedaxane	Tetraconazole	Trifloxystrobin
466	Mancozeb	Sedaxane	Prothioconazole	Azoxystrobin
467	Mancozeb	Sedaxane	Prothioconazole	Picoxystrobin
468	Mancozeb	Sedaxane	Prothioconazole	Pyraclostrobin
469	Mancozeb	Sedaxane	Prothioconazole	Kresoxim-methyl
470	Mancozeb	Sedaxane	Prothioconazole	Trifloxystrobin

The combinations of the present invention may be formulated in the form of a composition.

In an embodiment, the present invention may provide a composition comprising:

(a) at least one succinate dehydrogenase inhibitor fungicide;

(b) at least one dithiocarbamate fungicide;

(c) at least one quinone outside inhibitor; and

(d) at least one agrochemically acceptable excipient.

In an embodiment, the present invention may provide a composition comprising:

(a) at least one succinate dehydrogenase inhibitor fungicide;

(b) at least one dithiocarbamate fungicide;

(c) at least one ergostrol biosynthesis inhibitor; and

(d) at least one agrochemically acceptable excipient.

In an embodiment, the present invention may provide a composition comprising:

(a) at least one succinate dehydrogenase inhibitor fungicide;

(b) at least one dithiocarbamate fungicide;

(c) at least one a quinone outside inhibitor;

(d) at least one ergostrol biosynthesis inhibitor; and

(e) at least one agrochemically acceptable excipient.

The amount of a composition according to the invention to be applied, will depend on various factors, such as the subject of the treatment, such as, for example plants, soil or seeds; the type of treatment, such as, for example spraying, dusting or seed dressing; the purpose of the treatment, such as, for example prophylactic or therapeutic disease control; in case of disease control the type of fungi to be controlled or the application time. This amount of the combinations of the present invention to be applied can be readily deduced by a skilled agronomist.

Thus in an embodiment, the present invention may provide compositions comprising:

(a) at least one pyrazaole carboxamide selected from benzovindiflupyr, bixafen, fluxapyroxad, furametpyr, isopyrazam, penflufen, penthiopyrad, and sedaxane;

(b) at least one quinone outside inhibitor, and/or at least one ergostrol biosynthesis inhibitor; and

(c) at last one dithiocarbamate fungicide;

said fungicides being combined in agrochemically acceptable amounts.

In an embodiment, the total amount of succinate dehydrogenase inhibitor in the composition may typically be in the range of 0.1 to 99% by weight, preferably 0.2 to 90% by weight. The total amount of dithiocarbamate fungicide in the composition may be in the range of 0.1 to 99% by weight. The total amount of ergostrol biosynthesis inhibitor in the composition may be in the range of 0.1 to 99% by weight. The total amount of Quinone outside inhibitor in the composition may be in the range of 0.1 to 99% by weight.

In an embodiment, the constituent fungicides of the combination of the present invention may be admixed in ratio of (1-80): (1-80): (1-80) of the dithiocarbamate fungicide, succinate dehydrogenase inhibitor fungicide and the third fungicide respectively.

In an embodiment, the constituents of the composition of the present invention may be tank mixed and sprayed at the locus of the infection, or may be alternatively be mixed with surfactants and then sprayed.

In an embodiment, the constituents of the composition of the present invention may be used for foliar application, ground or applications to plant propagation materials.

In an embodiment, the compositions of the present invention may typically be produce by mixing the actives in the composition with an inert carrier, and adding surfactants and other adjuvants and carriers as needed and formulated into solid, or liquid formulations, including but not limited to wettable powders, granules, dusts, Soluble (liquid) concentrates, suspension concentrates, oil in water emulsion, water in oil emulsion, emulsifiable concentrates, capsule suspensions, ZC formulations, oil dispersions or other known formulation types. The composition may also be used for treatment of a plant propagation material such as seeds etc.

Examples of the solid carrier used in formulation include fine powders or granules such as minerals such as kaolin clay, attapulgite clay, bentonite, montmorillonite, acid white clay, pyrophyllite, talc, diatomaceous earth and calcite; natural organic materials such as corn rachis powder and walnut husk powder; synthetic organic materials such as urea; salts such as calcium carbonate and ammonium sulfate; synthetic inorganic materials such as synthetic hydrated silicon oxide; and as a liquid carrier, aromatic hydrocarbons such as xylene, alkylbenzene and methylnaphthalene; alcohols such as 2-propanol, ethyleneglycol, propylene glycol, and ethylene glycol monoethyl ether; ketones such as acetone, cyclohexanone and isophorone; vegetable oil such as soybean oil and cotton seed oil;

petroleum aliphatic hydrocarbons, esters, dimethylsulfoxide, acetonitrile and water.

Examples of the surfactant include anionic surfactants such as alkyl sulfate ester salts, alkylaryl sulfonate salts, dialkyl sulfosuccinate salts, polyoxyethylene alkylaryl ether phosphate ester salts, lignosulfonate salts and naphthalene sulfonate formaldehyde polycondensates; and nonionic surfactants such as polyoxyethylene alkyl aryl ethers, polyoxyethylene alkylpolyoxypropylene block copolymers and sorbitan fatty acid esters and cationic surfactants such as alkyltrimethylammonium salts.

Examples of the other formulation auxiliary agents include water-soluble polymers such as polyvinyl alcohol and polyvinylpyrrolidone, polysaccharides such as Arabic gum, alginic acid and the salt thereof, CMC (carboxymethyl- cellulose) , Xanthan gum, inorganic materials such as aluminum magnesium silicate and alumina sol, preservatives, coloring agents and stabilization agents such as PAP (acid phosphate isopropyl) and BHT.

The compositions according to the present invention is effective for the following plant diseases:

Disease in rice: Blast (Magnaporthe grisea), Helminthosporium leaf spot (Cochliobolus miyabeanus), sheath blight (Rhizoctonia solani) , and bakanae disease (Gibberella fujikuroi).

Diseases in wheat: powdery mildew (Erysiphe graminis) , Fusariuin head blight (Fusarium graminearum, F. avenacerum, F. culmorum, Microdochium nivale) , rust (Puccinia striiformis, P. graminis, P. recondita) , pink snow mold (Micronectriella nivale), Typhula snow blight (Typhula sp .) , loose smut (Ustilago tritici) , bunt (Tilletia caries) , eyespot (Pseudocercosporella herpotrichoides) , leaf blotch (Mycosphaerella graminicola) , glume blotch (Stagonospora nodorum) , septoria, and yellow spot (Pyrenophora tritici-repentis) .

Diseases of barley: powdery mildew (Erysiphe graminis), Fusarium head blight (Fusarium graminearum, F. avenacerum, F. culmorum, Microdochium nivale), rust (Puccinia striiformis, P. graminis, P. hordei) , loose smut (Ustilago nuda) , scald (Rhynchosporium secalis) , net blotch (Pyrenophora teres), spot blotch (Cochliobolus sativus), leaf stripe (Pyrenophora graminea) , and Rhizoctonia damping-off (Rhizoctonia solani) .

Diseases in corn: smut (Ustilago maydis), brown spot (Cochliobolus heterostrophus), copper spot (Gloeocercospora sorghi), southern rust (Puccinia polysora), gray leaf spot (Cercospora zeae-maydis), white spot (Phaeosphaeria mydis and/or Pantoea ananatis) and Rhizoctonia damping-off (Rhizoctonia solani).

Diseases of citrus: melanose (Diaporthe citri), scab (Elsinoe fawcetti), penicillium rot (Penicillium digitatum, P.italicum), and brown rot (Phytophthora parasitica, Phytophthora citrophthora) .

Diseases of apple: blossom blight (Monilinia mali) , canker (Valsa ceratosperma) , powdery mildew (Podosphaera leucotricha) , Alternaria leaf spot (Alternaria alternata apple pathotype) , scab (Venturia inaequalis) , powdery mildew, bitter rot (Colletotrichum acutatum) , crown rot (Phytophtora cactorum) , blotch (Diplocarpon mali) , and ring rot (Botryosphaeria berengeriana) .

Diseases of pear: scab (Venturia nashicola, V. pirina) , powdery mildew, black spot (Alternaria alternata Japanese pear pathotype) , rust (Gymnosporangium haraeanum) , and phytophthora fruit rot (Phytophtora cactorum).

Diseases of peach: brown rot (Monilinia fructicola) , powdery mildew, scab (Cladosporium carpophilum) , and phomopsis rot (Phomopsis sp.) .

Diseases of grape: anthracnose (Elsinoe ampelina) , ripe rot (Glomerella cingulata) , powdery mildew (Uncinula necator) , rust (Phakopsora ampelopsidis) , black rot (Guignardia bidwellii) , botrytis, and downy mildew (Plasmopara viticola) .

Diseases of Japanese persimmon: anthracnose (Gloeosporium kaki) , and leaf spot (Cercospora kaki, Mycosphaerella nawae) .

Diseases of gourd: anthracnose (Colletotrichum lagenarium) , powdery mildew (Sphaerotheca fuliginea) , gummy stem blight (Mycosphaerella melonis) , Fusarium wilt (Fusarium oxysporum) , downy mildew

(Pseudoperonospora cubensis) , Phytophthora rot (Phytophthora sp.) , and damping-off (Pythium sp .).

Diseases of tomato: early blight (Alternaria solani) , leaf mold (Cladosporium fulvum) , and late blight (Phytophthora infestans) .

Diseases of eggplant: brown spot (Phomopsis vexans) , and powdery mildew (Erysiphe cichoracearum) Diseases of cruciferous vegetables: Alternaria leaf spot (Alternaria japonica) , white spot (Cercosporella brassicae) , clubroot (Plasmodiophora brassicae) , and downy mildew (Peronospora parasitica) .

Diseases of onion: rust (Puccinia allii) , and downy mildew (Peronospora destructor) .

Diseases of soybean: purple seed stain (Cercospora kikuchii) , sphaceloma scad (Elsinoe glycines) , pod and stem blight (Diaporthe phaseolorum var. sojae) , septoria brown spot (Septoria glycines), frogeye leaf spot (Cercospora sojina), rust (Phakopsora pachyrhizi) , Yellow rust, brown stem rot (Phytophthora sojae), and Rhizoctonia damping-off (Rhizoctonia solani) .

Diseases of kidney bean: anthracnose (Colletotrichum lindemthianum) . Diseases of peanut: leaf spot (Cercospora personata) , brown leaf spot (Cercospora arachidicola) and southern blight (Sclerotium rolfsii).

Diseases of garden pea: powdery mildew (Erysiphe pisi) , and root rot (Fusarium solani f. sp. pisi) .

Diseases of potato: early blight (Alternaria solani) , late blight (Phytophthora infestans) , pink rot (Phytophthora erythroseptica) , and powdery scab (Spongospora subterranean f. sp. subterranea) .

Diseases of strawberry: powdery mildew (Sphaerotheca humuli), and anthracnose (Glomerella cingulata).

Diseases of tea: net blister blight (Exobasidium reticulatum) , white scab (Elsinoe leucospila) , gray blight (Pestalotiopsis sp.), and anthracnose (Colletotrichum theae- sinensis) .

Diseases of tobacco: brown spot (Alternaria longipes) , powdery mildew (Erysiphe cichoracearum) , anthracnose (Colletotrichum tabacum) , downy mildew (Peronospora tabacina) , and black shank (Phytophthora nicotianae).

Diseases of rapeseed: sclerotinia rot (Sclerotinia sclerotiorum) , and Rhizoctonia damping-off (Rhizoctonia solani) . Diseases of cotton: Rhizoctonia damping-off (Rhizoctonia solani) .

Diseases of sugar beat: Cercospora leaf spot (Cercospora beticola) , leaf blight (Thanatephorus cucumeris) , Root rot (Thanatephorus cucumeris), and Aphanomyces root rot (Aphanomyces cochlioides) .

Diseases of rose: black spot (Diplocarpon rosae) , powdery mildew (Sphaerotheca pannosa) , and downy mildew (Peronospora sparsa) . Diseases of chrysanthemum and asteraceous plants: downy mildew (Bremia lactucae) , leaf blight (Septoria chrysanthemi-indici) , and white rust (Puccinia horiana).

Diseases of various groups: diseases caused by Pythium spp. (Pythium aphanidermatum, Pythium debarianum, Pythium graminicola, Pythium irregulare, Pythium ultimum), gray mold. (Botrytis cinerea), and Sclerotinia rot (Sclerotinia sclerotiorum).

Disease of Japanese radish: Alternaria leaf spot (Alternaria brassicicola).

Diseases of turfgrass: dollar spot (Sclerotinia homeocarpa), and brown patch and large patch (Rhizoctonia solani).

Disease of banana: Black sigatoka (Mycosphaerella fijiensis), Yellow sigatoka (Mycosphaerella musicola).

Disease of sunflower: downy mildew (Plasmopara halstedii) .

Seed diseases or diseases in the early stages of the growth of various plants caused by Aspergillus spp., Penicillium spp., Fusarium spp., Gibberella spp., Tricoderma spp., Thielaviopsis spp., Rhizopus spp., Mucor spp., Corticium spp., Phoma spp., Rhizoctonia spp. and Diplodia spp.

Viral diseases of various plants mediated by Polymixa spp. or Olpidium spp. and so on.

The compositions of the present invention can be used in agricultural lands such as fields, paddy fields, lawns and orchards or in non-agricultural lands. The present invention may be used to control diseases in agricultural lands for cultivating the plants without any phytotoxicity to the plant.

Examples of the crops on which the present compositions may be used include but are not limited to corn, rice, wheat, barley, rye, oat, sorghum, cotton, soybean, peanut, buckwheat, beet, rapeseed, sunflower, sugar cane, tobacco, etc.; vegetables: solanaceous vegetables such as eggplant, tomato, pimento, pepper, potato, etc., cucurbit vegetables such as cucumber, pumpkin, zucchini, water melon, melon, squash, etc., cruciferous vegetables such as radish, white turnip, horseradish, kohlrabi, Chinese cabbage, cabbage, leaf mustard, broccoli, cauliflower, etc., asteraceous vegetables such as burdock, crown daisy, artichoke, lettuce, etc, liliaceous vegetables such as green onion, onion, garlic, and asparagus, ammiaceous vegetables such as carrot, parsley, celery, parsnip, etc., chenopodiaceous vegetables such as spinach, Swiss chard, etc., lamiaceous vegetables such as Perilla frutescens, mint, basil, etc, strawberry, sweet potato, Dioscorea japonica, colocasia, etc., flowers, foliage plants, turf grasses, fruits: pome fruits such apple, pear, quince, etc, stone fleshy fruits such as peach, plum, nectarine, Prunus mume, cherry fruit, apricot, prune, etc., citrus fruits

such as orange, lemon, rime, grapefruit, etc., nuts such as chestnuts, walnuts, hazelnuts, almond, pistachio, cashew nuts, macadamia nuts, etc. berries such as blueberry, cranberry, blackberry, raspberry, etc., grape, kaki fruit, olive, plum, banana, coffee, date palm, coconuts, etc. , trees other than fruit trees; tea, mulberry, flowering plant, trees such as ash, birch, dogwood, Eucalyptus, Ginkgo biloba, lilac, maple, Quercus, poplar, Judas tree, Liquidambar formosana, plane tree, zelkova, Japanese arborvitae, fir wood, hemlock, juniper, Pinus, Picea, and Taxus cuspidate, etc.

In an embodiment, the constituent fungicides of the combination of the present invention may be admixed in ratio of (1-80): (1-80): (1-80): (1:80)

In an aspect, the present invention may provide methods of controlling fungal diseases comprising applying a combination comprising:

(a) at least one succinate dehydrogenase inhibitor fungicide;

(b) at least one quinone outside inhibitor and/or at least one ergostrol biosynthesis inhibitor; and

(c) at least one dithiocarbamate fungicide.

In an embodiment, the succinate dehydrogenase inhibitor fungicide, the quinone outside inhibitor fungicide, the ergosterol biosynthesis inhibitor fungicide, and the dithiocarbamate fungicide may be selected according to any of the preferred embodiments of the combinations described hereinabove.

The combinations of the present invention may be sold as a pre-mix composition or a kit of parts such that individual actives may be mixed before spraying. Alternatively, the kit of parts may contain succinate dehydrogenase inhibitor fungicide and the dithiocarbamate fungicide pre-mixed and the third active may be admixed with an adjuvant such that the two components may be tank mixed before spraying.

The composition of the present invention maybe applied simultaneously as a tank mix or a formulation or may be applied sequentially. The application may be made to the soil before emergence of the plants, either pre-planting or post-planting. The application may be made as a foliar spray at different timings during crop development, with either one or two applications early or late post-emergence.

The compositions according to the invention can be applied before or after infection of the useful plants or the propagation material thereof by the fungi.

As will be demonstrated in the examples, the addition of a dithiocarbamate fungicide to a combination of succinate dehydrogenase inhibitors which are combined with Quinone outside inhibitors and/or ergosterol biosynthesis inhibitors, greatly improved the disease control as well as improved yield and demonstrated a synergistic effect. The lower the mixture performance in the disease control, the greater the additional benefit of the mancozeb when added to the compositions of the present invention.

While the foregoing written description of the invention enables one of ordinary skill to make and use what is considered presently to be the best mode thereof, those of ordinary skill will understand and appreciate the existence of variations, combinations, and equivalents of the specific embodiment, method, and examples herein. The invention should therefore not be limited by the above described embodiment, method, and examples, but by all embodiments and methods within the scope and spirit of the invention.

Dated this 4th day of November 2016

Dr. Sanchita Ganguli
of S. Majumdar & Co.
Applicant's Agent

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International application number:		**PCT/IB2017/056710**
International filing date:		**30 October 2017 (30.10.2017)**
Document type:		**Certified copy of priority document**
Document details:	Country/Office:	**IN**
	Number:	**201631037704**
	Filing date:	**04 November 2016 (04.11.2016)**
Date of receipt at the International Bureau:		**20 November 2017 (20.11.2017)**

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0-2	International Filing Date	30 October 2017 (30.10.2017)
0-3	Name of receiving Office and "PCT International Application"	RO/IB
0-4	**Form PCT/RO/101 PCT Request**	
0-4-1	Prepared Using	ePCT-Filing Version 4.1.013 MT/FOP 20151028/0.20.5.24
0-5	**Petition**	
	The undersigned requests that the present international application be processed according to the Patent Cooperation Treaty	
0-6	**Receiving Office (specified by the applicant)**	International Bureau of the World Intellectual Property Organization (RO/IB)
0-7	**Applicant's or agent's file reference**	PCT00717
I	**Title of Invention**	FUNGICIDAL COMBINATIONS
II	**Applicant**	
II-1	This person is	Applicant only
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III-1-1	This person is	Inventor only
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III-4-3	Inventor for	All designated States
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III-4-5	Address	206, Swiss Tower, Cluster Y, Jumeirah Lake Towers, P.O. Box: 33421, Dubai United Arab Emirates

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IV-1	**Agent or common representative; or address for correspondence**	
	The person identified below is hereby/ has been appointed to act on behalf of the applicant(s) before the competent International Authorities as:	Agent
IV-1-1	Name (LAST, First)	MAJUMDAR, Subhatosh
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IV-1-5	e-mail	cal@patentindia.com
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IV-2	**Additional agent(s)**	additional agent(s) with same address as first named agent
IV-2-1	Name(s)	GANGULI, Dr., Sanchita; SEN, Abhishek; VENKATESH, Mythili; MAJUMDAR, Amrita; CHAUBEY, Priyanka
V	**DESIGNATIONS**	
V-1	**The filing of this request constitutes under Rule 4.9(a), the designation of all Contracting States bound by the PCT on the international filing date, for the grant of every kind of protection available and, where applicable, for the grant of both regional and national patents.**	
VI-1	**Priority claim of earlier national application**	
VI-1-1	Filing date	04 November 2016 (04.11.2016)
VI-1-2	Number	201631037704
VI-1-3	Country or Member of WTO	IN
VI-2	**Incorporation by reference :** where an element of the international application referred to in Article 11(1)(iii)(d) or (e) or a part of the description, claims or drawings referred to in Rule 20.5(a) is not otherwise contained in this international application but is completely contained in an earlier application whose priority is claimed on the date on which one or more elements referred to in Article 11(1)(iii) were first received by the receiving Office, that element or part is, subject to confirmation under Rule 20.6, incorporated by reference in this international application for the purposes of Rule 20.6.	

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VII-1	**International Searching Authority Chosen**	Australian Patent Office (ISA/AU)	
VIII	**Declarations**	Number of declarations	
VIII-1	Declaration as to the identity of the inventor	–	
VIII-2	Declaration as to the applicant's entitlement, as at the international filing date, to apply for and be granted a patent	–	
VIII-3	Declaration as to the applicant's entitlement, as at the international filing date, to claim the priority of the earlier application	–	
VIII-4	Declaration of inventorship (only for the purposes of the designation of the United States of America)	–	
VIII-5	Declaration as to non-prejudicial disclosures or exceptions to lack of novelty	–	
IX	**Check list**	Number of sheets	Electronic file(s) attached
IX-1	Request (including declaration sheets)	5	✓
IX-2	Description	48	✓
IX-3	Claims	4	✓
IX-4	Abstract	1	✓
IX-5	Drawings	0	–
IX-7	TOTAL	58	
	Accompanying Items	Paper document(s) attached	Electronic file(s) attached
IX-8	Fee calculation sheet	–	✓
IX-20	**Figure of the drawings which should accompany the abstract**		
IX-21	**Language of filing of the international application**	English	
X-1	**Signature of applicant, agent or common representative**		
X-1-1	Name (LAST, First)	GANGULI, Dr., Sanchita	
X-1-3	Capacity (if such capacity is not obvious from reading the request)	Agent	

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10-1	**Date of actual receipt of the purported international application**	30 October 2017 (30.10.2017)
10-2	**Drawings:**	
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10-2-2	Not received	
10-3	**Corrected date of actual receipt due to later but timely received papers or drawings completing the purported international application**	
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Application Number	
Filing Date	
First Named Inventor	Carlow Eduardo FABRI
Art Unit	
Examiner Name	
Attorney Docket Number	UP20010US

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	1	2015079334	WO	A1	2015-06-04	UPL LIMITED		

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First Named Inventor	Carlow Eduardo FABRI
Art Unit	
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Attorney Docket Number	UP20010US

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T[5]
	1	BRENT K. J. et al.; "Fungicide Resistance in Crop Pathogens: How Can It Be Managed?"; 2nd Revised Edition, Fungicide Resistance Action Committee, 2007, ISBN 90-72398-07-6; 60 pages	
	2	International Search Report and Written Opinion; International Application No. PCT/IB2017/056710; International Filing Date October 30, 2017; Date of Mailing January 12, 2018; 10 pages	
	3	LALANCETTE, Norman, "New Fungicide for Apple Disease Control" Plant & Pest Advisory, Rutgers Cooperative Extension, March 17, 2016, 2 pages	
	4	ROSENBERGER, David; "Apple Scab Models & Suggestions for Scab Control in 2015"; 70th North Jersey Commercial Fruit Growers Meeting, Flemington, NJ, 4 March 2015, 31 pages	

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EFS Web 2.1.17

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Not for submission under 37 CFR 1.99)

Application Number	
Filing Date	
First Named Inventor	Carlow Eduardo FABRI
Art Unit	
Examiner Name	
Attorney Docket Number	UP20010US

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

☒ A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Karen A. LeCuyer/	Date (YYYY-MM-DD)	2019-05-03
Name/Print	Karen A. LeCuyer	Registration Number	51928

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these record s.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

To:

MAJUMDAR, Subhatosh
5, Harish Mukherjee Road, West Bengal,
700 025 Kolkata
India

PCT

NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL SEARCH REPORT AND THE WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY, OR THE DECLARATION

(PCT Rule 44.1)

Date of mailing *(day/month/year)*
12 January 2018

Applicant's or agent's file reference
PCT00717

FOR FURTHER ACTION See paragraphs 1 and 4 below

International application No.
PCT/IB2017/056710

International filing date
30 October 2017

Applicant
UPL LTD

1. [X] The applicant is hereby notified that the international search report and the written opinion of the International Searching Authority have been established and are transmitted herewith.

Filing of amendments and statement under Article 19:
The applicant is entitled, if he so wishes, to amend the claims of the international application (see Rule 46):

When? The time limit for filing such amendments is normally two months from the date of transmittal of the international search report.

How? Directly to the International Bureau of WIPO preferably through ePCT or on paper to, 34 chemin des Colombettes 1211 Geneva 20, Switzerland, Facsimile No.: +41 22 338 82 70

For more detailed instructions, see *PCT Applicant's Guide*, International Phase, paragraphs 9.004 -- 9.011.

2. [ ] The applicant is hereby notified that no international search report will be established and that the declaration under Article 17(2)(a) to that effect and the written opinion of the International Searching Authority are transmitted herewith.

3. [ ] **With regard to any protest** against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:

[ ] the protest together with the decision thereon has been transmitted to the International Bureau together with the applicant's request to forward the texts of both the protest and the decision thereon to the designated Offices.

[ ] no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.

4. **Reminders**

The applicant may **submit comments on an informal basis on the written opinion of the International Searching Authority** to the International Bureau. These comments will be made available to the public after international publication. The International Bureau will send a copy of such comments to all designated Offices unless an international preliminary examination report has been or is to be established.

Shortly after the expiration of **18 months from the priority date, the international application will be published** by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau before the completion of the technical preparations for international publication (Rules 90*bis*.1 and 90*bis*.3).

Within **19 months** from the priority date, but only in respect of some designated Offices, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase **until 30 months** from the priority date (in some Offices even later); otherwise, the applicant must, **within 20 months** from the priority date, perform the prescribed acts for **entry into the national phase** before those designated Offices. In respect of other designated Offices, the time limit of **30 months** (or later) will apply even if no demand is filed within 19 months. For details about the applicable time limits, Office by Office, see www.wipo.int/pct/en/texts/time limits.html and the *PCT Applicant's Guide*, National Chapters.

Within **19 months from the priority date, the applicant may request that a supplementary international search be carried out** by a different International Searching Authority that offers this service (Rule 45*bis*. 1). The procedure for requesting supplementary international search is described in the PCT Applicant's Guide, International Phase, paragraphs 8.006-8.032.

Name and mailing address of the ISA/AU

AUSTRALIAN PATENT OFFICE
PO BOX 200, WODEN ACT 2606, AUSTRALIA
Email address: pct@ipaustralia.gov.au

Authorised officer

Cassandra Mitchell
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Form PCT/ISA/220 (July 2014)

(See notes on accompanying sheet)

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference	FOR FURTHER ACTION	see Form PCT/ISA/220 as well as, where applicable, item 5 below.
PCT00717		
International application No.	International filing date *(day/month/year)*	(Earliest) Priority Date *(day/month/year)*
PCT/IB2017/056710	30 October 2017	04 November 2016

Applicant

UPL LTD

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of **5** sheets.

☐ It is also accompanied by a copy of each prior art document cited in this report.

1. **Basis of the report**

a. With regard to the **language**, the international search was carried out on the basis of:

☒ The international application in the language in which it was filed.

☐ A translation of the international application into , which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).

b. ☐ This international search report has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43.6*bis*(a)).

c. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☐ **Certain claims were found unsearchable** (See Box No. II).

3. ☐ **Unity of invention is lacking** (See Box No. III).

4. With regard to the **title,**

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract,**

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2, by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the **drawings,**

a. the figure of the **drawings** to be published with the abstract is Figure No.

☐ as suggested by the applicant.

☐ as selected by this Authority, because the applicant failed to suggest a figure.

☐ as selected by this Authority, because this figure better characterizes the invention.

b. ☐ none of the figures is to be published with the abstract.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/IB2017/056710

A. CLASSIFICATION OF SUBJECT MATTER

A01N 47/14 (2006.01) A01N 43/56 (2006.01) A01N 43/653 (2006.01) A01N 43/54 (2006.01) A01N 43/50 (2006.01) A01N 37/50 (2006.01) A01P 3/00 (2006.01)

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

PATENW, CAPLUS, BIOSIS, CABA, REGISTRY, GOOGLE, GOOGLE SCHOLAR: Keywords: Mancozeb, penthiopyrad, isopyrazam, benzovindiflupyr, succinate dehydrogenase, +conazole, +strobin and the like. IPC/CPC marks: A01N47/14, A01N47/18, A01N43/40, A01N43/56, A01P3/00, A01N2300/00. CAS Registry numbers of specified fungicides.

Applicant/Inventor search: CAPLUS, Espacenet and internal databases of IP Australia.

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.

Documents are listed in the continuation of Box C

[X] Further documents are listed in the continuation of Box C [X] See patent family annex

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search
12 January 2018

Date of mailing of the international search report
12 January 2018

Name and mailing address of the ISA/AU

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Authorised officer

Cassandra Mitchell
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Form PCT/ISA/210 (fifth sheet) (July 2009)

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2009/0131462 A1 (GEWEHR M ET AL) 21 May 2009 ([0060]-[0090], [0140], Table 1	1-2, 4-9, 12-17
X	Rosenberger, David. "Apple Scab Models & Suggestions for Scab Control in 2015" 70th North Jersey Commercial Fruit Growers Meeting, Flemington, NJ, 4 March 2015 Slide 17	1-6, 8, 10, 12-17
X	US 2008/0113979 A1 (FOOR S R) 15 May 2008 [0024]-[0040], [0121]-[0129]	1-17
X	WO 2015/079334 A1 (UPL LIMITED) 04 June 2015 pg 15, 18-23	1-8, 10-17
A	Lalancette, Norman. "New Fungicide for Apple Disease Control", Plant & Pest Advisory, Rutgers Cooperative Extension, March 17 2016	
A	Brent K J et al. "Fungicide Resistance in Crop Pathogens: How can it be managed?" 2nd revised edition, Fungicide Resistance Action Committee, 2007, ISBN 90-72398-07-6	

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.
PCT/IB2017/056710

This Annex lists known patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document/s Cited in Search Report		Patent Family Member/s	
Publication Number	**Publication Date**	**Publication Number**	**Publication Date**
US 2009/0131462 A1	21 May 2009	US 2009131462 A1	21 May 2009
		BR PI0613752 A2	16 Nov 2016
		CN 101222847 A	16 Jul 2008
		EP 1909577 A2	16 Apr 2008
		JP 2009501768 A	22 Jan 2009
		WO 2007010036 A2	25 Jan 2007
US 2008/0113979 A1	15 May 2008	US 2008113979 A1	15 May 2008
		AU 2005289678 A1	06 Apr 2006
		AU 2005289678 A2	22 Apr 2010
		AU 2005289678 B2	07 Jul 2011
		BR PI0515840 A	12 Aug 2008
		BR PI0515840 B1	09 Dec 2014
		CA 2581121 A1	06 Apr 2006
		CN 101026960 A	29 Aug 2007
		EC SP077334 A	26 Apr 2007
		EG 25488 A	15 Jan 2012
		EP 1796465 A1	20 Jun 2007
		EP 1796465 B1	17 Sep 2008
		IL 181750 A	30 Nov 2011
		JP 2008514623 A	08 May 2008
		JP 5129571 B2	30 Jan 2013
		KR 20070060095 A	12 Jun 2007
		KR 101302266 B1	02 Sep 2013
		MA 28884 B1	03 Sep 2007
		MX 2007003473 A	08 May 2007
		MX 277370 B	19 Jul 2010
		NZ 553543 A	30 Sep 2010
		PH 12007500661 B1	26 Jan 2011
		RS 50630 B	30 Jun 2010
		TN SN07106 A1	02 Jun 2008
		US 2012010252 A1	12 Jan 2012
		WO 2006036827 A1	06 Apr 2006
		ZA 200702378 B	27 Aug 2008

Due to data integration issues this family listing may not include 10 digit Australian applications filed since May 2001

INTERNATIONAL SEARCH REPORT

International application No.

Information on patent family members

PCT/IB2017/056710

This Annex lists known patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document/s Cited in Search Report		Patent Family Member/s	
Publication Number	**Publication Date**	**Publication Number**	**Publication Date**
WO 2015/079334 A1	04 June 2015	WO 2015079334 A1	04 Jun 2015
		AR 098519 A1	01 Jun 2016
		AU 2014356115 A1	06 Oct 2016
		BR 102014029476 A2	14 Jul 2015
		CA 2928538 A1	04 Jun 2015
		CN 105744834 A	06 Jul 2016
		EP 3073826 A1	05 Oct 2016
		GB 2532700 A	25 May 2016
		GB 2532700 B	31 Aug 2016
		IN 1336KO2013 A	29 May 2015
		US 2016360751 A1	15 Dec 2016
		US 9788544 B2	17 Oct 2017
		US 2017332636 A1	23 Nov 2017
		US 2017332637 A1	23 Nov 2017
		US 2017332638 A1	23 Nov 2017
		UY 35847 A	29 May 2015

End of Annex

Due to data integration issues this family listing may not include 10 digit Australian applications filed since May 2001

PATENT COOPERATION TREATY

From the:
INTERNATIONAL SEARCHING AUTHORITY

To:

MAJUMDAR, Subhatosh
5, Harish Mukherjee Road, West Bengal,
700 025 Kolkata
India

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43*bis*.1)

Date of mailing *(day/month/year)*
12 January 2018

Applicant's or agent's file reference
PCT00717

FOR FURTHER ACTION
See paragraph 2 below

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/IB2017/056710	30 October 2017	04 November 2016

International Patent Classification (IPC) or both national classification and IPC
A01N 47/14 (2006.01) ***A01N 43/56 (2006.01)*** ***A01N 43/653 (2006.01)*** ***A01N 43/54 (2006.01)*** ***A01N 43/50 (2006.01)***
A01N 37/50 (2006.01) ***A01P 3/00 (2006.01)***

Applicant
UPL LTD

1. This opinion contains indications relating to the following items:

- [X] Box No. I Basis of the opinion
- [ ] Box No. II Priority
- [ ] Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- [ ] Box No. IV Lack of unity of invention
- [X] Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step and industrial applicability; citations and explanations supporting such statement
- [ ] Box No. VI Certain documents cited
- [ ] Box No. VII Certain defects in the international application
- [ ] Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1*bis*(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

Name and mailing address of the ISA

AUSTRALIAN PATENT OFFICE
PO BOX 200, WODEN ACT 2606,
AUSTRALIA
Email address: pct@ipaustralia.gov.au

Date of completion of this opinion
12 January 2018

Authorised Officer

Cassandra Mitchell
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Form PCT/ISA/237 (Cover sheet) (July 2011)

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/IB2017/056710

Box No. I Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of:

   [X] The international application in the language in which it was filed

   [ ] A translation of the international application into, , which is the language of a translation furnished for the purposes of international search (under Rules 12.3(a) and 23.1(b)).

2. [ ] This opinion has been established taking into account **the rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43*bis*.1(a))

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of a sequence listing filed or furnished:

   a. (means)

      [ ] on paper

      [ ] in electronic form

   b. (time)

      [ ] in the international application as filed

      [ ] together with the international application in electronic form

      [ ] subsequently to this Authority for the purposes of search

4. [ ] In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

5. Additional comments:

Box No. V **Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. **Statement**

Novelty (N)	Claims **11**	**YES**
	Claims **1-10, 12-17**	**NO**
Inventive step (IS)	Claims **NONE**	**YES**
	Claims **1-17**	**NO**
Industrial applicability (IA)	Claims **1-17**	**YES**
	Claims **NONE**	**NO**

2. **CITATIONS AND EXPLANATIONS:**

CITATIONS

D1: US 2009/0131462 A1 (GEWEHR M ET AL) 21 May 2009

D2: Rosenberger, David. "Apple Scab Models & Suggestions for Scab Control in 2015" 70th North Jersey Commercial Fruit Growers Meeting, Flemington, NJ, 4 March 2015

D3: US 2008/0113979 A1 (FOOR S R) 15 May 2008

D4: WO 2015/079334 A1 (UPL LIMITED) 04 June 2015

D5: Lalancette, Norman. "New Fungicide for Apple Disease Control", Plant & Pest Advisory, Rutgers Cooperative Extension, March 17 2016

D6: Brent K J et al. "Fungicide Resistance in Crop Pathogens: How can it be managed?" 2nd revised edition, Fungicide Resistance Action Committee, 2007, ISBN 90-72398-07-6

NOVELTY (N)

D1 discloses ternary/quaternary fungicidal compositions comprising prothiopyrad (succinate dehydrogenase inhibitor), metiram (dithiocarbamate) and at least one more fungicide from group B including prothioconazole (ergosterol biosynthesis inhibitor) and famoxadone or fenamidone (quinone outside inhibitor). The compositions can be formulated into various formulations like powders or suspensions and the ratio of the constituent fungicides is 100:1-1:100 ([0060]-[0090], Table 1). The compositions can include other fungicides like strobilurons in order to widen the fungicidal activity spectrum. The compositions have excellent activity against a broad spectrum of harmful fungi and can be used in crop protection as foliar fungicides ([0140]). Therefore claims 1-2, 4-9, 12-17 are not novel.

Slide 17 of D2 discloses that mancozeb (dithiocarbamate) should be added to two known commercial products Luna Sensation (suspension concentrate of fluopyram and trifloxystrobin) and Merivon (suspension concentrate of fluxapyroxad and pyraclostrobin) and be used to treat fungal disease in apple trees. Both fluxapyroxad and fluopyram are succinate dehydrogenase inhibitors, while trifloxystrobin and pyraclostrobin are quinone outside inhibitors. Therefore claims 1-6, 8, 10, 12-17 are not novel.

D4 discloses a fungicidal combination comprising a multi-site contact fungicide (mancozeb = dithiocarbamate), a first systemic fungicide (succinate dehydrogenase inhibitor) and a second systemic fungicide (quinone outside inhibitor or ergosterol biosynthesis inhibitor). The succinate dehydrogenase inhibitor is chosen from bixafen, fluxapyroxad, furametpyr, isopyrazam, penflufen, penthiopyrad and sedaxane, while the preferred quinone outside inhibitor is a strobiluron fungicide and the preferred ergosterol biosynthesis inhibitor is a conazole fungicide (pg 15, 18-20). The addition of a dithiocarbamate fungicide to the systemic fungicides greatly increased the activity of the systemic fungicides over the expected disease control and expected yield (pg 21). The compositions can formulated into powders or emulsions with agriculturally acceptable additives (pg 23). Therefore claims 1-8, 10, 12-17 are not novel.

Claims 1-10 and 12-17 are not novel and therefore do not comply with PCT Article 33(2).

Claim 11 is novel and therefore complies with PCT Article 33(2).

INVENTIVE STEP (IS)

Given the above novelty objection, claims 1-10 and 12-17 do not involve an inventive step.

Claim 11 does not involve an inventive step in light of D4. The disclosure of D4 is discussed above.

Claim 11 differs from D4 in that it specifies a combination of (A) mancozeb; and (B) benzovindiflupyr, isopyrazam or penthiopyrad; and (C) prothioconazole and/or azoxystrobin.

However, D4 mentions that the addition of a dithiocarbamate fungicide to systemic fungicides like those specified as components (B) and (C) of claim 11 greatly increases the activity of the systemic fungicides over the expected disease control and expected yield. This is the same as the advantage for the current claimed composition, as mentioned in paragraph 1 on page 46 of the current specification, wherein a dithiocarbamate fungicide is added to a combination of systemic fungicides including succinate dehydrogenase inhibitors with quinone outside inhibitors and/or ergosterol biosynthesis inhibitors. Therefore it would appear that the advantage is known in the art and hence the specific combination of claim 11 is merely an obvious choice which the skilled addressee would arrive at by a routine and non-inventive process.

Claims 1-17 do not involve an inventive step in light of D3 and common general knowledge in the art.

D3 discloses fungicidal mixtures of penthiopyrad (succinate dehydrogenase inhibitor), strobilurons (quinone outside inhibitors) and triazoles/imidazoles (ergosterol biosynthesis inhibitors) that are useful for controlling fungal diseases on fruits and vegetables. The mixture is used as a formulation with agriculturally suitable components and formulated as solutions, emulsions or powders ([0024]-[0040], [0121]-[0129]).

The claimed invention differs from D3 in that the fungicidal compositions contains a dithiocarbamate, in particular mancozeb.

However, it is commonly known in the art that fungicides like succinate dehydrogenase inhibitors, quinone outside inhibitors and ergosterol biosynthesis inhibitors have a medium to high risk of resistance development and hence protectant or broad spectrum fungicides like mancozeb should always be used in conjunction with these at risk materials so that resistance development is delayed and the fungicides remain usable. As such, it is considered that the person skilled in the art would as a matter of routine include a known broad spectrum dithiocarbamate fungicide like mancozeb in the fungicidal mixture of D3 in order to delay resistance development in crop pathogens and broaden the fungicidal activity spectrum.

Claims 1-17 do not involve an inventive step and therefore do not comply with PCT Article 33(3).

INDUSTRIAL APPLICABILITY (IA)

The invention defined in the claims is considered to meet the requirements of Industrial Applicability under Article 33(4) of the PCT because it can be made by, or used in, industry.

Electronic Patent Application Fee Transmittal

Application Number:

Filing Date:

Title of Invention: FUNGICIDAL COMBINATIONS

First Named Inventor/Applicant Name: Carlos Eduardo FABRI

Filer: Karen A. LeCuyer/Jackie Boya

Attorney Docket Number: UP20010US (FPAA06284)

Filed as Large Entity

Filing Fees for U.S. National Stage under 35 USC 371

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
NATIONAL STAGE FEE	1631	1	300	300
NATL STAGE SEARCH FEE - REPORT PROVIDED	1642	1	520	520
NATIONAL STAGE EXAM - ALL OTHER CASES	1633	1	760	760
Pages:				
Claims:				
Miscellaneous-Filing:				
OATH/DECL > 30 MOS FROM 371 COMMENCEMENT	1617	1	140	140
Petition:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
	Total in USD ($)			**1720**

Electronic Acknowledgement Receipt

EFS ID:	35907233
Application Number:	16347283
International Application Number:	PCT/IB2017/056710
Confirmation Number:	4341
Title of Invention:	FUNGICIDAL COMBINATIONS
First Named Inventor/Applicant Name:	Carlos Eduardo FABRI
Customer Number:	23413
Filer:	Karen A. LeCuyer/Jackie Boya
Filer Authorized By:	Karen A. LeCuyer
Attorney Docket Number:	UP20010US (FPAA06284)
Receipt Date:	03-MAY-2019
Filing Date:	
Time Stamp:	12:06:34
Application Type:	U.S. National Stage under 35 USC 371

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	$1720
RAM confirmation Number	050319INTEFSW12072100
Deposit Account	061130
Authorized User	Jackie Boya

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

37 CFR 1.17 (Patent application and reexamination processing fees)

37 CFR 1.21 (Miscellaneous fees and charges)

37 CFR 1.492 (National application filing, search, and examination fees)

37 CFR 1.492(a) (Basic national fee only)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Application Data Sheet	8AN1510.PDF	1256370 d9c7230690f8340fb60c1223933f269d3e3fe078	no	9

Warnings:

Information:

2		8AL7326.pdf	2239309 18c7ba25740371bc90847d8ffa55e5fcdcd5113c	yes	53

Multipart Description/PDF files in .zip description

Document Description	Start	End
Claims	50	53
Specification	1	49

Warnings:

Information:

3	Documents submitted with 371 Applications	8AL7339.pdf	83085 a503923464607e5dc1def5fc69692710a7a31222	no	1

Warnings:

Information:

4	Preliminary Amendment	8AO3600.pdf	75799 2bcd3430397b6453f43d1a1fcded2189af2602f6	no	7

Warnings:

Information:

5	Information Disclosure Statement (IDS) Form (SB08)	8AN1022.PDF	612627 0f40a58b3b6fb6a6b5df721859770665c044e4ec	no	4

Warnings:

Information:

6	Other Reference-Patent/App/Search documents	8AL7338.pdf	628085 fce64eb51520af30c71ecae8f2f3cf88c1f035 04	no	10

Warnings:

Information:

7	Non Patent Literature	8AN0603.pdf	3859713 48cda71633f3e57c6ad5d8f4fab3e4f8c9139 0ae	no	31

Warnings:

Information:

8	Non Patent Literature	8AN0410.pdf	124244 f64435415bb035db1dee809cbcaa1c9c466 3cd48	no	2

Warnings:

Information:

9	Non Patent Literature	8AN0417.pdf	9252588 e906ad7546cc28eee79cddef2ccc7c54aab9 e384	no	60

Warnings:

Information:

10	Foreign Reference	8AL7840.PDF	1954855 65d7a3107b2bb6fa08dc9f67f859bf806162 dfb4	no	47

Warnings:

Information:

11	Fee Worksheet (SB06)	fee-info.pdf	36871 ed63f094904d62fcbba9ca71a6877f3137dd bfb5	no	2

Warnings:

Information:

Total Files Size (in bytes):	20123546

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.
National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.
New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/AIA/14 (02-18)
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Application Data Sheet 37 CFR 1.76

Attorney Docket Number UP20010US (FPAA06284)
Application Number

Title of Invention | FUNGICIDAL COMBINATIONS

The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76.
This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.

Secrecy Order 37 CFR 5.2:

☐ Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)

Inventor Information:

Inventor 1 Remove
Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Carlos	Eduardo	FABRI	

Residence Information (Select One) US Residency ● Non US Residency Active US Military Service

City	Country of Residence i
Sao Paulo -SP	BR

Mailing Address of Inventor:

Address 1	United Phosphorus do Brasil Ltda,
Address 2	Avenida Jandira, 257, Cjt 142/143, Indianopolis,
City	Sao Paulo - SP **State/Province**
Postal Code	**Country** i BR

Inventor 2 Remove
Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Rajju	Devidas	SHROFF	

Residence Information (Select One) US Residency ◉ Non US Residency Active US Military Service

City	Country of Residence i
Mumbai, Maharashtra	IN

Mailing Address of Inventor:

Address 1	UPL House, 610 B/2, Bandra Village,
Address 2	Off Western Express Highway, Bandra East
City	Mumbai, Maharashtra **State/Province**
Postal Code	400051 **Country** i IN

Inventor 3 Remove
Legal Name

PTO/AIA/14 (02-18)
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Application Data Sheet 37 CFR 1.76

Attorney Docket Number UP20010US (FPAA06284)

Application Number

Title of Invention | FUNGICIDAL COMBINATIONS

Prefix	Given Name	Middle Name	Family Name	Suffix
	Jaidev	Rajnikant	SHROFF	

Residence Information (Select One) US Residency ◉ Non US Residency Active US Military Service

City	Country of Residence i
Dubai	AE

Mailing Address of Inventor:

Address 1	206, Swiss Tower, Cluster Y, Jumeirah Lake Towers
Address 2	P.O. Box: 33421,
City	Dubai
State/Province	
Postal Code	
Country i	AE

Inventor 4 Remove

Legal Name

Prefix	Given Name	Middle Name	Family Name	Suffix
	Vikram	Rajnikant	SHROFF	

Residence Information (Select One) US Residency ◉ Non US Residency Active US Military Service

City	Country of Residence i
Dubai	AE

Mailing Address of Inventor:

Address 1	206, Swiss Tower, Cluster Y, Jumeirah Lake Towers
Address 2	P.O. Box: 33421
City	Dubai
State/Province	
Postal Code	
Country i	AE

All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the **Add** button. Add

Correspondence Information:

Enter either Customer Number or complete the Correspondence Information section below.
For further information see 37 CFR 1.33(a).

☐ **An Address is being provided for the correspondence Information of this application.**

Customer Number	23413
Email Address	Add Email Remove Email

PTO/AIA/14 (02-18)
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U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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Application Data Sheet 37 CFR 1.76

Attorney Docket Number UP20010US (FPAA06284)

Application Number

Title of Invention | FUNGICIDAL COMBINATIONS

Application Information:

Title of the Invention	FUNGICIDAL COMBINATIONS		
Attorney Docket Number	UP20010US (FPAA06284)	**Small Entity Status Claimed** ☐	
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)		**Suggested Figure for Publication (if any)**	

Filing By Reference:

Only complete this section when filing an application by reference under 35 U.S.C. 111(c) and 37 CFR 1.57(a). Do not complete this section if application papers including a specification and any drawings are being filed. Any domestic benefit or foreign priority information must be provided in the appropriate section(s) below (i.e., "Domestic Benefit/National Stage Information" and "Foreign Priority Information").

For the purposes of a filing date under 37 CFR 1.53(b), the description and any drawings of the present application are replaced by this reference to the previously filed application, subject to conditions and requirements of 37 CFR 1.57(a).

Application number of the previously filed application	Filing date (YYYY-MM-DD)	Intellectual Property Authority or Country

Publication Information:

☐ Request Early Publication (Fee required at time of Request 37 CFR 1.219)

☐ **Request Not to Publish.** I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application **has not and will not** be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32).
Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.

Please Select One:	● Customer Number	US Patent Practitioner	○ Limited Recognition (37 CFR 11.9)
Customer Number	23413		

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Application Data Sheet 37 CFR 1.76

Attorney Docket Number UP20010US (FPAA06284)

Application Number

Title of Invention | FUNGICIDAL COMBINATIONS

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, 365(c), or 386(c) or indicate National Stage entry from a PCT application. Providing benefit claim information in the Application Data Sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.
When referring to the current application, please leave the "Application Number" field blank.

Prior Application Status: Pending — Remove

Application Number	Continuity Type	Prior Application Number	Filing or 371(c) Date (YYYY-MM-DD)
	a 371 of international	PCT/IB2017/056710	2017-10-30

Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the **Add** button. Add

Foreign Priority Information:

This section allows for the applicant to claim priority to a foreign application. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55. When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX)[i] the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(i)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

Remove

Application Number	Country[i]	Filing Date (YYYY-MM-DD)	Access Code[i] (if applicable)
201631037704	IN	2016-11-04	

Additional Foreign Priority Data may be generated within this form by selecting the **Add** button. Add

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

☐ This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013.
NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.

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Application Data Sheet 37 CFR 1.76

Attorney Docket Number UP20010US (FPAA06284)

Application Number

Title of Invention	FUNGICIDAL COMBINATIONS

Authorization or Opt-Out of Authorization to Permit Access:

When this Application Data Sheet is properly signed and filed with the application, applicant has provided written authority to permit a participating foreign intellectual property (IP) office access to the instant application-as-filed (see paragraph A in subsection 1 below) and the European Patent Office (EPO) access to any search results from the instant application (see paragraph B in subsection 1 below).

Should applicant choose not to provide an authorization identified in subsection 1 below, applicant **must opt-out** of the authorization by checking the corresponding box A or B or both in subsection 2 below.

NOTE: This section of the Application Data Sheet is **ONLY** reviewed and processed with the **INITIAL** filing of an application. After the initial filing of an application, an Application Data Sheet cannot be used to provide or rescind authorization for access by a foreign IP office(s). Instead, Form PTO/SB/39 or PTO/SB/69 must be used as appropriate.

1. Authorization to Permit Access by a Foreign Intellectual Property Office(s)

A. Priority Document Exchange (PDX) - Unless box A in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the State Intellectual Property Office of the People's Republic of China (SIPO), the World Intellectual Property Organization (WIPO), and any other foreign intellectual property office participating with the USPTO in a bilateral or multilateral priority document exchange agreement in which a foreign application claiming priority to the instant patent application is filed, access to: (1) the instant patent application-as-filed and its related bibliographic data, (2) any foreign or domestic application to which priority or benefit is claimed by the instant application and its related bibliographic data, and (3) the date of filing of this Authorization. See 37 CFR 1.14(h)(1).

B. Search Results from U.S. Application to EPO - Unless box B in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the EPO access to the bibliographic data and search results from the instant patent application when a European patent application claiming priority to the instant patent application is filed. See 37 CFR 1.14(h)(2).

The applicant is reminded that the EPO's Rule 141(1) EPC (European Patent Convention) requires applicants to submit a copy of search results from the instant application without delay in a European patent application that claims priority to the instant application.

2. Opt-Out of Authorizations to Permit Access by a Foreign Intellectual Property Office(s)

☐ A. Applicant **DOES NOT** authorize the USPTO to permit a participating foreign IP office access to the instant application-as-filed. If this box is checked, the USPTO will not be providing a participating foreign IP office with any documents and information identified in subsection 1A above.

☐ B. Applicant **DOES NOT** authorize the USPTO to transmit to the EPO any search results from the instant patent application. If this box is checked, the USPTO will not be providing the EPO with search results from the instant application.

NOTE: Once the application has published or is otherwise publicly available, the USPTO may provide access to the application in accordance with 37 CFR 1.14.

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Application Data Sheet 37 CFR 1.76

Attorney Docket Number UP20010US (FPAA06284)

Application Number

Title of Invention | FUNGICIDAL COMBINATIONS

Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Applicant 1 Remove

If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.

Clear

Assignee | Legal Representative under 35 U.S.C. 117 | Joint Inventor

● Person to whom the inventor is obligated to assign. | Person who shows sufficient proprietary interest

If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:

Name of the Deceased or Legally Incapacitated Inventor:

If the Applicant is an Organization check here. ☒

Organization Name	UPL LTD
Mailing Address Information For Applicant:	
Address 1	Agrochemical Plant, Durgachak
Address 2	Midnapore Dist.
City	West Bengal, Haldia
State/Province	
Country	IN
Postal Code	721602
Phone Number	
Fax Number	
Email Address	

Additional Applicant Data may be generated within this form by selecting the Add button. Add

Assignee Information including Non-Applicant Assignee Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

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Application Data Sheet 37 CFR 1.76

Attorney Docket Number UP20010US (FPAA06284)

Application Number

Title of Invention | FUNGICIDAL COMBINATIONS

Assignee 1

Complete this section if assignee information, including non-applicant assignee information, is desired to be included on the patent application publication. An assignee-applicant identified in the "Applicant Information" section will appear on the patent application publication as an applicant. For an assignee-applicant, complete this section only if identification as an assignee is also desired on the patent application publication.

Remove

If the Assignee or Non-Applicant Assignee is an Organization check here. ☐

Prefix	**Given Name**	Middle Name	**Family Name**	Suffix

Mailing Address Information For Assignee including Non-Applicant Assignee:

Address 1

Address 2

City **State/Province**

Country i Postal Code

Phone Number Fax Number

Email Address

Additional Assignee or Non-Applicant Assignee Data may be generated within this form by selecting the Add button. Add

Signature:

Remove

NOTE: This Application Data Sheet must be signed in accordance with 37 CFR 1.33(b). **However, if this Application Data Sheet is submitted with the INITIAL filing of the application and either box A or B is not checked in subsection 2 of the "Authorization or Opt-Out of Authorization to Permit Access" section, then this form must also be signed in accordance with 37 CFR 1.14(c).**

This Application Data Sheet **must** be signed by a patent practitioner if one or more of the applicants is a **juristic entity** (e.g., corporation or association). If the applicant is two or more joint inventors, this form must be signed by a patent practitioner, **all** joint inventors who are the applicant, or one or more joint inventor-applicants who have been given power of attorney (e.g., see USPTO Form PTO/AIA/81) on behalf of **all** joint inventor-applicants.

See 37 CFR 1.4(d) for the manner of making signatures and certifications.

Signature	/Karen A. LeCuyer/	Date (YYYY-MM-DD)	2019-05-03
First Name	Karen A.	Last Name	LeCuyer
Registration Number	51928		

Additional Signature may be generated within this form by selecting the Add button. Add

PTO/AIA/14 (02-18)
Approved for use through 11/30/2020. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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Application Data Sheet 37 CFR 1.76

Attorney Docket Number UP20010US (FPAA06284)

Application Number

Title of Invention | FUNGICIDAL COMBINATIONS

This collection of information is required by 37 CFR 1.76. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1 The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3 A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

PATENT COOPERATION TREATY

ADVANCE E-MAIL

From the INTERNATIONAL BUREAU

PCT

To:

NOTIFICATION CONCERNING SUBMISSION, OBTENTION OR TRANSMITTAL OF PRIORITY DOCUMENT

(PCT Administrative Instructions, Section 411)

MAJUMDAR, Subhatosh
5, Harish Mukherjee Road, West Bengal,
Kolkata 700 025
INDE

Date of mailing *(day/month/year)*
24 November 2017 (24.11.2017)

Applicant's or agent's file reference
PCT00717

IMPORTANT NOTIFICATION

International application No.
PCT/IB2017/056710

International filing date *(day/month/year)*
30 October 2017 (30.10.2017)

International publication date *(day/month/year)*
Not yet published

Priority date *(day/month/year)*
04 November 2016 (04.11.2016)

Applicant
UPL LTD

The applicant is hereby notified of the date of receipt (or of obtaining by the International Bureau) of the priority document(s) relating to all earlier application(s) whose priority is claimed. Unless otherwise indicated by the letters "NR", in the right-hand column or by an asterisk appearing next to the date of receipt, **the priority document concerned was submitted or transmitted to or obtained by the International Bureau in compliance with Rule 17.1(a), (b) or (b-*bis*)**. This Form replaces any previously issued notification concerning submission, transmittal or obtaining of priority documents.

Priority date	Priority application No.	Country or regional Office or PCT receiving Office	Date of receipt of priority document
04 November 2016 (04.11.2016)	201631037704	IN	20 November 2017 (20.11.2017)

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(54) Title: FUNGICIDAL COMBINATIONS

(57) Abstract: A combination comprising a dithiocarbamate fungicide, a succinate dehydrogenase fungicide and at least one of ergosterol biosynthesis inhibitor fungicide or a quinone outside inhibitor fungicide.

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FUNGICIDAL COMBINATIONS

Technical field:

The present invention relates to a combination of fungicides. More specifically, the present invention relates to fungicidal combinations comprising succinate dehydrogenase inhibitor fungicides for controlling a broad spectrum of fungal diseases.

Background of the invention:

Fungicides are an integral and important tool yielded by farmers to control diseases, as well as to improve yields and quality of the crops. There are various fungicides that have been developed over the years with many desirable attributes such as specificity, systemicity, curative and eradicant action and high activity at low use rates.

Succinate dehydrogenase inhibitor (SDHI) fungicides are known in the art to be broad spectrum and have a high potency. Pyrazolecarboxamides are a group of active compounds within the SDHI family of fungicides that are known to be more potent than most other SDHI fungicides. These molecules specifically bind to the ubiquinone-binding site (Q-site) of the mitochondrial complex II, thereby inhibiting fungal respiration. These fungicides are known to control a broad spectrum of fungal diseases.

Various other classes of fungicides are also known in the art, such as Quinone outside inhibitors (QoIs), ergosterol-biosynthesis inhibitors, fungicides that act on multiple sites, fungicides that affect mitosis etc. These fungicides have been mixed with SDHI fungicides to achieve a broad spectrum of disease control.

WO2006037632 teaches combinations of SDHI fungicides with a second active compound. WO2013127818 teaches combinations of SDHI fungicides with various herbicides. WO2006037634 teaches methods of controlling fungi using a combination of SDHI fungicide with various fungicides. However, the prior art does not teach the use of ternary or higher combinations of SDHI fungicides.

Dithiocarbamate are known in the art as multi-site fungicides. These fungicides are used for broad-spectrum disease control in more than 70 crops. Mancozeb is especially important for controlling devastating and fast spreading diseases such as *Phytophthora infestans*, *Venturia inaequalis* etc. Dithiocarbamate fungicides, especially mancozeb, are particularly useful for disease control because of their broad spectrum of activity, high tolerance by crop plants, and general usefulness for controlling fungal plant diseases not controlled by active compounds that act on only a single target site in the fungus.

Mancozeb has been combined with various SDHI fungicides for disease control. There is a need in the art to improve on the disease spectrum provided by these combinations.

There is therefore a need in the art for combinations of SDHIs with a specific fungicide that helps improve spectrum. With crop tolerances decreasing, lower use rates being imposed and resistance being increasingly observed, there is a need for a combination of actives that allows for broader disease control spectrum that combines curative and preventive actives and has a lower dosage.

Therefore, embodiments of the present invention may ameliorate one or more of the above mentioned problems:

Therefore, embodiments of the present invention may provide combinations of fungicides that possess an enhanced efficacy over the individual fungicides used in isolation.

Another object of the present invention is to provide a fungicidal combination that causes an enhanced greening of the crops to which it is administered.

Another object of the present invention is to provide a fungicidal combination that causes late senescence to the crop to which it is applied thereby resulting into an increasing yield of the crop.

Yet another object of the present invention is to provide a fungicidal combination that results into reduced fungal disease incidence in the crops to which it is applied.

Another object of the present invention is to provide a fungicidal combination that achieves increased yield in the crops to which it is applied.

Some or all these and other objects of the invention are can be achieved by way of the invention described hereinafter.

Summary of the invention:

Thus, an aspect of the present invention can provide a fungicidal combination comprising at least one succinate dehydrogenase inhibitor fungicide, at least one dithiocarbamate fungicide, and at least another fungicide.

Another aspect of the present invention can provide a fungicidal combination comprising at least one succinate dehydrogenase inhibitor fungicide, at least one dithiocarbamate fungicide and at least two other fungicides.

Another aspect of the present invention can provide synergistic compositions comprising at least one succinate dehydrogenase inhibitor fungicide, at least one dithiocarbamate fungicide, and at least one other fungicide.

Another aspect of the present invention can provide synergistic compositions comprising at least one succinate dehydrogenase inhibitor fungicide, at least one dithiocarbamate fungicide and at least two other fungicides.

Detailed Description:

The term "disease control" as used herein denotes control and prevention of a disease. Controlling effects include all deviation from natural development, for example: killing, retardation, decrease of the fugal disease. The term "plants" refers to all physical parts of a plant, including seeds, seedlings, saplings, roots, tubers, stems, stalks, foliage and fruits. The term "locus" of a plant as used herein is intended to embrace the place on which the plants are growing, where the plant propagation materials of the plants are sown or where the plant propagation materials of the plants will be placed into the soil. The term "plant propagation material" is understood to denote generative parts of a plant, such as seeds, vegetative material such as cuttings or tubers, roots, fruits, tubers, bulbs, rhizomes and parts of plants, germinated plants and young plants which are to be transplanted after germination or after emergence from the soil. These young plants may be protected before transplantation by a total or partial treatment by immersion. The term "agriculturally acceptable amount of active" refers to an

amount of an active that kills or inhibits the plant disease for which control is desired, in an amount not significantly toxic to the plant being treated.

Succinate dehydrogenase inhibitor (SDHI) fungicides play an important role in plant protection against many phytopathogenic fungi. These molecules specifically bind to the ubiquinone-binding site (Q-site) of the mitochondrial complex II, thereby inhibiting fungal respiration. Dithiocarbamate are multi-site contact fungicides. These molecules attack multiple sites within the fugal cells.

It has surprisingly been found that the addition of a dithiocarbamate fungicide to the combinations of succinate dehydrogenase inhibitors with at least another fungicide selected from an ergosterol biosynthesis inhibitors or Quinone outside inhibitors or a combination thereof, resulted in surprising and unexpected advantages. It was surprising that the addition of a dithiocarbamate fungicide to the combination of a succinate dehydrogenase inhibitor with at least another fungicide selected from an ergosterol biosynthesis inhibitors and/or Quinone outside inhibitors or a combination thereof resulted in an enhancement of the efficacy, and a surprising reduction in fungal disease incidence, seen only with the combination of succinate dehydrogenase inhibitors with at least another fungicide selected from an ergosterol biosynthesis inhibitors or Quinone outside inhibitors or a combination thereof. It has further been found that the addition of a dithiocarbamate fungicide to these combinations and application of these combinations during the flowering stage of the crop delayed the senescence in the crop to which they were applied, which led to better greening in the crop thereby increasing the level of photosynthesis occurring within the plant, thereby leading to a greater yield from the crop to which they were applied.

These surprising advantages of the combinations of the invention were not observed when the dithiocarbamate fungicide was not present in the combination. Therefore, these unexpected advantages of the combination of the present invention could be attributed to the inclusion of a dithiocarbamate fungicide to the combination of a succinate dehydrogenase inhibitor with at least another fungicide selected from an ergosterol biosynthesis inhibitors and/or Quinone outside inhibitors or a combination thereof.

Thus, in an aspect, the present invention provides a fungicidal combination comprising:

(a) at least one dithiocarbamate fungicide;

(b) at least one succinate dehydrogenase inhibitor fungicide; and

(c) at least another fungicide selected from an ergosterol biosynthesis inhibitors and/or Quinone outside inhibitors.

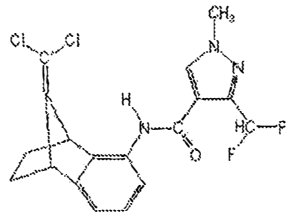
In an embodiment, the dithiocarbamate fungicide is selected from the group consisting of amobam, asomate, azithiram, carbamorph, cufraneb, cuprobam, disulfiram, ferbam, metam, nabam, tecoram, thiram, urbacide, ziram, dazomet, etem, milneb, mancopper, mancozeb, maneb, metiram, polycarbamate, propineb and zineb.

In an embodiment, the preferred dithiocarbamate fungicide is mancozeb.

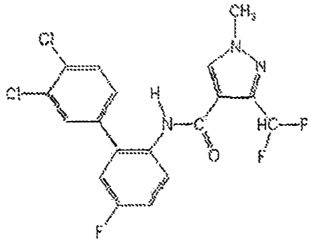
In an embodiment, the succinate dehydrogenase inhibitor is selected from pyrazole carboxamide class of succinate dehydrogenase inhibitor fungicides. However, it should be understood that the choice of succinate dehydrogenase inhibitors is not understood to be limited to these pyrazole carboxamide fungicides alone.

In an embodiment, the pyrazole carboxamide class of succinate dehydrogenase inhibitor fungicide may be selected from benzovindiflupyr, bixafen, fluxapyroxad, furametpyr, isopyrazam, penflufen, penthiopyrad, and sedaxane.

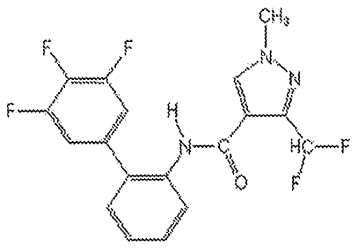
Benzovindiflupyr has the chemical name *N*-[(1*RS*,4*SR*)-9-(dichloromethylene)-1,2,3,4-tetrahydro-1,4-methanonaphthalen-5-yl]-3-(difluoromethyl)-1-methylpyrazole-4-carboxamide and has the structure:



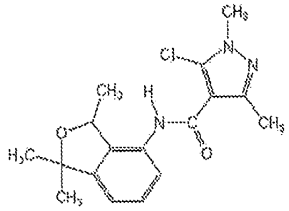
Bixafen has the chemical name *N*-(3',4'-dichloro-5-fluorobiphenyl-2-yl)-3-(difluoromethyl)-1-methylpyrazole-4-carboxamide and the structure:



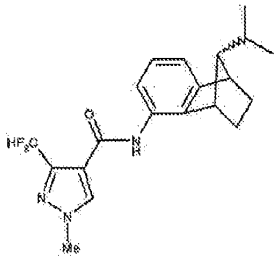
Fluxapyroxad has the chemical name 3-(difluoromethyl)-1-methyl-*N*-(3',4',5'-trifluorobiphenyl-2-yl)pyrazole-4-carboxamide and has the structure:



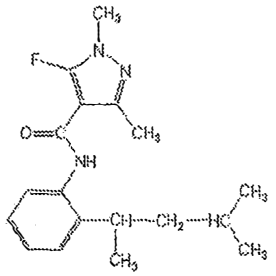
Furametpyr has the chemical name (*RS*)-5-chloro-*N*-(1,3-dihydro-1,1,3-trimethylisobenzofuran-4-yl)-1,3-dimethylpyrazole-4-carboxamide and has the structure:



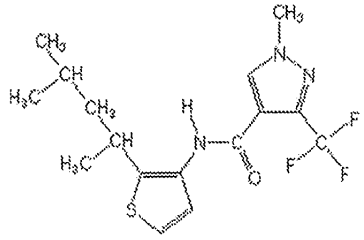
Isopyrazam is a mixture of 2 isomers 3-(difluoromethyl)-1-methyl-*N*-[(1*RS*,4*SR*,9*RS*)-1,2,3,4-tetrahydro-9-isopropyl-1,4-methanonaphthalen-5-yl]pyrazole-4-carboxamide and 2 aisomers 3-(difluoromethyl)-1-methyl-*N*-[(1*RS*,4*SR*,9*SR*)-1,2,3,4-tetrahydro-9-isopropyl-1,4-methanonaphthalen-5-yl]pyrazole-4-carboxamide and its tautomer's have the structure:



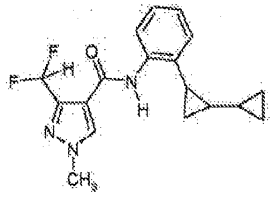
Penflufen has the chemical name *N*-[2-(1,3-dimethylbutyl)phenyl]-5-fluoro-1,3-dimethyl-1*H*-pyrazole-4-carboxamide, and has the following structure:



ಹ Penthiopyrad has the chemical name (*RS*)-*N*-[2-(1,3-dimethylbutyl)-3-thienyl]-1-methyl-3-(trifluoromethyl)pyrazole-4-carboxamide, and has the following structure:



ಪಾ Sedaxane is a mixture of 2 cis-isomers 2'-[(1*RS*,2*RS*)-1,1'-bicycloprop-2-yl]-3-(difluoromethyl)-1-methylpyrazole-4-carboxanilide and 2 trans-isomers 2'-[(1*RS*,2*SR*)-1,1'-bicycloprop-2-yl]-3-(difluoromethyl)-1-methylpyrazole-4-carboxanilide , and its tautomer's have the structure:



In an embodiment, the succinate dehydrogenase inhibitor fungicide may be selected from the group consisting of benodanil, flutolanil, mepronil, isofetamid, fluopyram, fenfuram, carboxin, oxycarboxin, thifluzamide, boscalid and IR9792.

In an embodiment, the third and/or fourth fungicides in the combinations of the present invention may be selected from ergosterol biosynthesis inhibitors, and/or Quinone outside (Qo) inhibitors or mixtures thereof.

Thus in an embodiment, the ergosterol biosynthesis inhibitors may be selected from the group consisting of azaconazole, bitertanol, bromuconazole, cyproconazole, difenoconazole, diniconazole, epoxiconazole, etaconazole, fenbuconazole, fluquinconazole, flusilazole, flutriafol, hexaconazole, imibenconazole, Ipconazole, metconazole, myclobutanil, penconazole, Propiconazole, simeconazole, tebuconazole, tetraconazole, triadimefon, triadimenol, triticonazole, prothioconazole, imazalil, oxpoconazole, pefurazoate, prochloraz, triflumizole, fenarimol, nuarimol, pyrifenox , pyrisoxazole, triforine and mixtures thereof.

In another embodiment, the ergosterol biosynthesis inhibitors may be selected from prothioconazole, tebuconazole, hexaconazole, cyroconazole or epoxiconazole.

In an embodiment, the third fungicide may be a Quinone outside (Qo) inhibitor fungicide selected from azoxystrobin, coumoxystrobin, enoxastrobin, flufenoxystrobin, picoxystrobin, pyraoxystrobin, mandestrobin, pyraclostrobin, pyrametostrobin, triclopyricarb, kresoxim-methyl, dimoxystrobin, fenaminostrobin,

metominostrobin, trifloxystrobin, famoxadone, fluoxastrobin, fenamidone, pyribencarb and mixtures thereof.

In an embodiment, the Quinone outside (Qo) inhibitor fungicide may be selected from azoxystrobin, picoxystrobin, kresoxim-methyl, pyraclostrobin and trifloxystrobin.

In an embodiment of the combinations of the present invention, the preferred succinate dehydrogenase inhibitor fungicide is isopyrazam.

In an embodiment, the combinations of the present invention include the following preferred combinations:

S No.	I	II	III	IV
1	Mancozeb	Isopyrazam	Cyproconazole	-
2	Mancozeb	Isopyrazam	Difenoconazole	-
3	Mancozeb	Isopyrazam	Epoxiconazole	-
4	Mancozeb	Isopyrazam	Hexaconazole	-
5	Mancozeb	Isopyrazam	Tebuconazole	-
6	Mancozeb	Isopyrazam	Tetraconazole	-
7	Mancozeb	Isopyrazam	Prothioconazole	-
8	Mancozeb	Isopyrazam	-	Azoxystrobin
9	Mancozeb	Isopyrazam	-	Picoxystrobin
10	Mancozeb	Isopyrazam	-	Pyraclostrobin
11	Mancozeb	Isopyrazam	-	Kresoxim-methyl
12	Mancozeb	Isopyrazam	-	Trifloxystrobin

13	Mancozeb	Isopyrazam	Cyproconazole	Azoxystrobin
14	Mancozeb	Isopyrazam	Cyproconazole	Picoxystrobin
15	Mancozeb	Isopyrazam	Cyproconazole	Pyraclostrobin
16	Mancozeb	Isopyrazam	Cyproconazole	Kresoxim-methyl
17	Mancozeb	Isopyrazam	Cyproconazole	Trifloxystrobin
18	Mancozeb	Isopyrazam	Difenoconazole	Azoxystrobin
19	Mancozeb	Isopyrazam	Difenoconazole	Picoxystrobin
20	Mancozeb	Isopyrazam	Difenoconazole	Pyraclostrobin
21	Mancozeb	Isopyrazam	Difenoconazole	Kresoxim-methyl
22	Mancozeb	Isopyrazam	Difenoconazole	Trifloxystrobin
23	Mancozeb	Isopyrazam	Epoxiconazole	Azoxystrobin
24	Mancozeb	Isopyrazam	Epoxiconazole	Picoxystrobin
25	Mancozeb	Isopyrazam	Epoxiconazole	Pyraclostrobin
26	Mancozeb	Isopyrazam	Epoxiconazole	Kresoxim-methyl
27	Mancozeb	Isopyrazam	Epoxiconazole	Trifloxystrobin
28	Mancozeb	Isopyrazam	Hexaconazole	Azoxystrobin
29	Mancozeb	Isopyrazam	Hexaconazole	Picoxystrobin
30	Mancozeb	Isopyrazam	Hexaconazole	Pyraclostrobin
31	Mancozeb	Isopyrazam	Hexaconazole	Kresoxim-methyl
32	Mancozeb	Isopyrazam	Hexaconazole	Trifloxystrobin
33	Mancozeb	Isopyrazam	Tebuconazole	Azoxystrobin
34	Mancozeb	Isopyrazam	Tebuconazole	Picoxystrobin

35	Mancozeb	Isopyrazam	Tebuconazole	Pyraclostrobin
36	Mancozeb	Isopyrazam	Tebuconazole	Kresoxim-methyl
37	Mancozeb	Isopyrazam	Tebuconazole	Trifloxystrobin
38	Mancozeb	Isopyrazam	Tetraconazole	Azoxystrobin
39	Mancozeb	Isopyrazam	Tetraconazole	Picoxystrobin
40	Mancozeb	Isopyrazam	Tetraconazole	Pyraclostrobin
41	Mancozeb	Isopyrazam	Tetraconazole	Kresoxim-methyl
42	Mancozeb	Isopyrazam	Tetraconazole	Trifloxystrobin
43	Mancozeb	Isopyrazam	Prothioconazole	Azoxystrobin
44	Mancozeb	Isopyrazam	Prothioconazole	Picoxystrobin
45	Mancozeb	Isopyrazam	Prothioconazole	Pyraclostrobin
46	Mancozeb	Isopyrazam	Prothioconazole	Kresoxim-methyl
47	Mancozeb	Isopyrazam	Prothioconazole	Trifloxystrobin

In an embodiment of the combinations of the present invention, the preferred succinate dehydrogenase inhibitor fungicide is Benzovindiflupyr.

In an embodiment, the combinations of the present invention include the following preferred combinations:

S No.	I	II	III	IV
48	Mancozeb	Benzovindiflupyr	Cyproconazole	-
49	Mancozeb	Benzovindiflupyr	Difenoconazole	-
50	Mancozeb	Benzovindiflupyr	Epoxiconazole	-

51	Mancozeb	Benzovindiflupyr	Hexaconazole	-
52	Mancozeb	Benzovindiflupyr	Tebuconazole	-
53	Mancozeb	Benzovindiflupyr	Tetraconazole	-
54	Mancozeb	Benzovindiflupyr	Prothioconazole	-
55	Mancozeb	Benzovindiflupyr	-	Azoxystrobin
56	Mancozeb	Benzovindiflupyr	-	Picoxystrobin
57	Mancozeb	Benzovindiflupyr	-	Pyraclostrobin
58	Mancozeb	Benzovindiflupyr	-	Kresoxim-methyl
59	Mancozeb	Benzovindiflupyr	-	Trifloxystrobin
60	Mancozeb	Benzovindiflupyr	Cyproconazole	Azoxystrobin
61	Mancozeb	Benzovindiflupyr	Cyproconazole	Picoxystrobin
62	Mancozeb	Benzovindiflupyr	Cyproconazole	Pyraclostrobin
63	Mancozeb	Benzovindiflupyr	Cyproconazole	Kresoxim-methyl
64	Mancozeb	Benzovindiflupyr	Cyproconazole	Trifloxystrobin
65	Mancozeb	Benzovindiflupyr	Difenoconazole	Azoxystrobin
66	Mancozeb	Benzovindiflupyr	Difenoconazole	Picoxystrobin
67	Mancozeb	Benzovindiflupyr	Difenoconazole	Pyraclostrobin
68	Mancozeb	Benzovindiflupyr	Difenoconazole	Kresoxim-methyl
69	Mancozeb	Benzovindiflupyr	Difenoconazole	Trifloxystrobin
70	Mancozeb	Benzovindiflupyr	Epoxiconazole	Azoxystrobin
71	Mancozeb	Benzovindiflupyr	Epoxiconazole	Picoxystrobin
72	Mancozeb	Benzovindiflupyr	Epoxiconazole	Pyraclostrobin

73	Mancozeb	Benzovindiflupyr	Epoxiconazole	Kresoxim-methyl
74	Mancozeb	Benzovindiflupyr	Epoxiconazole	Trifloxystrobin
75	Mancozeb	Benzovindiflupyr	Hexaconazole	Azoxystrobin
76	Mancozeb	Benzovindiflupyr	Hexaconazole	Picoxystrobin
77	Mancozeb	Benzovindiflupyr	Hexaconazole	Pyraclostrobin
78	Mancozeb	Benzovindiflupyr	Hexaconazole	Kresoxim-methyl
79	Mancozeb	Benzovindiflupyr	Hexaconazole	Trifloxystrobin
80	Mancozeb	Benzovindiflupyr	Tebuconazole	Azoxystrobin
81	Mancozeb	Benzovindiflupyr	Tebuconazole	Picoxystrobin
82	Mancozeb	Benzovindiflupyr	Tebuconazole	Pyraclostrobin
83	Mancozeb	Benzovindiflupyr	Tebuconazole	Kresoxim-methyl
84	Mancozeb	Benzovindiflupyr	Tebuconazole	Trifloxystrobin
85	Mancozeb	Benzovindiflupyr	Tetraconazole	Azoxystrobin
86	Mancozeb	Benzovindiflupyr	Tetraconazole	Picoxystrobin
87	Mancozeb	Benzovindiflupyr	Tetraconazole	Pyraclostrobin
88	Mancozeb	Benzovindiflupyr	Tetraconazole	Kresoxim-methyl
89	Mancozeb	Benzovindiflupyr	Tetraconazole	Trifloxystrobin
90	Mancozeb	Benzovindiflupyr	Prothioconazole	Azoxystrobin
91	Mancozeb	Benzovindiflupyr	Prothioconazole	Picoxystrobin
92	Mancozeb	Benzovindiflupyr	Prothioconazole	Pyraclostrobin
93	Mancozeb	Benzovindiflupyr	Prothioconazole	Kresoxim-methyl

94	Mancozeb	Benzovindiflupyr	Prothioconazole	Trifloxystrobin

In an embodiment of the combinations of the present invention, the preferred succinate dehydrogenase inhibitor fungicide is Penthiopyrad.

In an embodiment, the combinations of the present invention include the following preferred combinations:

S No.	I	II	III	IV
95	Mancozeb	Penthiopyrad	Cyproconazole	-
96	Mancozeb	Penthiopyrad	Difenoconazole	-
97	Mancozeb	Penthiopyrad	Epoxiconazole	-
98	Mancozeb	Penthiopyrad	Hexaconazole	-
99	Mancozeb	Penthiopyrad	Tebuconazole	-
100	Mancozeb	Penthiopyrad	Tetraconazole	-
101	Mancozeb	Penthiopyrad	Prothioconazole	-
102	Mancozeb	Penthiopyrad	-	Azoxystrobin
103	Mancozeb	Penthiopyrad	-	Picoxystrobin
104	Mancozeb	Penthiopyrad	-	Pyraclostrobin
105	Mancozeb	Penthiopyrad	-	Kresoxim-methyl
106	Mancozeb	Penthiopyrad	-	Trifloxystrobin
107	Mancozeb	Penthiopyrad	Cyproconazole	Azoxystrobin
108	Mancozeb	Penthiopyrad	Cyproconazole	Picoxystrobin
109	Mancozeb	Penthiopyrad	Cyproconazole	Pyraclostrobin
110	Mancozeb	Penthiopyrad	Cyproconazole	Kresoxim-methyl

111	Mancozeb	Penthiopyrad	Cyproconazole	Trifloxystrobin
112	Mancozeb	Penthiopyrad	Difenoconazole	Azoxystrobin
113	Mancozeb	Penthiopyrad	Difenoconazole	Picoxystrobin
114	Mancozeb	Penthiopyrad	Difenoconazole	Pyraclostrobin
115	Mancozeb	Penthiopyrad	Difenoconazole	Kresoxim-methyl
116	Mancozeb	Penthiopyrad	Difenoconazole	Trifloxystrobin
117	Mancozeb	Penthiopyrad	Epoxiconazole	Azoxystrobin
118	Mancozeb	Penthiopyrad	Epoxiconazole	Picoxystrobin
119	Mancozeb	Penthiopyrad	Epoxiconazole	Pyraclostrobin
120	Mancozeb	Penthiopyrad	Epoxiconazole	Kresoxim-methyl
121	Mancozeb	Penthiopyrad	Epoxiconazole	Trifloxystrobin
122	Mancozeb	Penthiopyrad	Hexaconazole	Azoxystrobin
123	Mancozeb	Penthiopyrad	Hexaconazole	Picoxystrobin
124	Mancozeb	Penthiopyrad	Hexaconazole	Pyraclostrobin
125	Mancozeb	Penthiopyrad	Hexaconazole	Kresoxim-methyl
126	Mancozeb	Penthiopyrad	Hexaconazole	Trifloxystrobin
127	Mancozeb	Penthiopyrad	Tebuconazole	Azoxystrobin
128	Mancozeb	Penthiopyrad	Tebuconazole	Picoxystrobin
129	Mancozeb	Penthiopyrad	Tebuconazole	Pyraclostrobin
130	Mancozeb	Penthiopyrad	Tebuconazole	Kresoxim-methyl
131	Mancozeb	Penthiopyrad	Tebuconazole	Trifloxystrobin
132	Mancozeb	Penthiopyrad	Tetraconazole	Azoxystrobin

133	Mancozeb	Penthiopyrad	Tetraconazole	Picoxystrobin
134	Mancozeb	Penthiopyrad	Tetraconazole	Pyraclostrobin
135	Mancozeb	Penthiopyrad	Tetraconazole	Kresoxim-methyl
136	Mancozeb	Penthiopyrad	Tetraconazole	Trifloxystrobin
137	Mancozeb	Penthiopyrad	Prothioconazole	Azoxystrobin
138	Mancozeb	Penthiopyrad	Prothioconazole	Picoxystrobin
139	Mancozeb	Penthiopyrad	Prothioconazole	Pyraclostrobin
140	Mancozeb	Penthiopyrad	Prothioconazole	Kresoxim-methyl
141	Mancozeb	Penthiopyrad	Prothioconazole	Trifloxystrobin

In an embodiment of the combinations of the present invention, the preferred succinate dehydrogenase inhibitor fungicide is boscalid.

In an embodiment, the combinations of the present invention include the following preferred combinations:

S No.	I	II	III	IV
142	Mancozeb	Boscalid	Cyproconazole	-
143	Mancozeb	Boscalid	Difenoconazole	-
144	Mancozeb	Boscalid	Epoxiconazole	-
145	Mancozeb	Boscalid	Hexaconazole	-
146	Mancozeb	Boscalid	Tebuconazole	-
147	Mancozeb	Boscalid	Tetraconazole	-
148	Mancozeb	Boscalid	Prothioconazole	-
149	Mancozeb	Boscalid	-	Azoxystrobin

150	Mancozeb	Boscalid	-	Picoxystrobin
151	Mancozeb	Boscalid	-	Pyraclostrobin
152	Mancozeb	Boscalid	-	Kresoxim-methyl
153	Mancozeb	Boscalid	-	Trifloxystrobin
154	Mancozeb	Boscalid	Cyproconazole	Azoxystrobin
155	Mancozeb	Boscalid	Cyproconazole	Picoxystrobin
156	Mancozeb	Boscalid	Cyproconazole	Pyraclostrobin
157	Mancozeb	Boscalid	Cyproconazole	Kresoxim-methyl
158	Mancozeb	Boscalid	Cyproconazole	Trifloxystrobin
159	Mancozeb	Boscalid	Difenoconazole	Azoxystrobin
160	Mancozeb	Boscalid	Difenoconazole	Picoxystrobin
161	Mancozeb	Boscalid	Difenoconazole	Pyraclostrobin
162	Mancozeb	Boscalid	Difenoconazole	Kresoxim-methyl
163	Mancozeb	Boscalid	Difenoconazole	Trifloxystrobin
164	Mancozeb	Boscalid	Epoxiconazole	Azoxystrobin
165	Mancozeb	Boscalid	Epoxiconazole	Picoxystrobin
166	Mancozeb	Boscalid	Epoxiconazole	Pyraclostrobin
167	Mancozeb	Boscalid	Epoxiconazole	Kresoxim-methyl
168	Mancozeb	Boscalid	Epoxiconazole	Trifloxystrobin
169	Mancozeb	Boscalid	Hexaconazole	Azoxystrobin
170	Mancozeb	Boscalid	Hexaconazole	Picoxystrobin
171	Mancozeb	Boscalid	Hexaconazole	Pyraclostrobin

172	Mancozeb	Boscalid	Hexaconazole	Kresoxim-methyl
173	Mancozeb	Boscalid	Hexaconazole	Trifloxystrobin
174	Mancozeb	Boscalid	Tebuconazole	Azoxystrobin
175	Mancozeb	Boscalid	Tebuconazole	Picoxystrobin
176	Mancozeb	Boscalid	Tebuconazole	Pyraclostrobin
177	Mancozeb	Boscalid	Tebuconazole	Kresoxim-methyl
178	Mancozeb	Boscalid	Tebuconazole	Trifloxystrobin
179	Mancozeb	Boscalid	Tetraconazole	Azoxystrobin
180	Mancozeb	Boscalid	Tetraconazole	Picoxystrobin
181	Mancozeb	Boscalid	Tetraconazole	Pyraclostrobin
182	Mancozeb	Boscalid	Tetraconazole	Kresoxim-methyl
183	Mancozeb	Boscalid	Tetraconazole	Trifloxystrobin
184	Mancozeb	Boscalid	Prothioconazole	Azoxystrobin
185	Mancozeb	Boscalid	Prothioconazole	Picoxystrobin
186	Mancozeb	Boscalid	Prothioconazole	Pyraclostrobin
187	Mancozeb	Boscalid	Prothioconazole	Kresoxim-methyl
188	Mancozeb	Boscalid	Prothioconazole	Trifloxystrobin

In an embodiment of the combinations of the present invention, the preferred succinate dehydrogenase inhibitor fungicide is IR9792. IR9792 is a SDHI fungicide, developed by Isagro, with the proposed common name fluindapyr.

In an embodiment, the combinations of the present invention include the following preferred combinations:

S No.	I	II	III	IV
189	Mancozeb	IR9792	Cyproconazole	-
190	Mancozeb	IR9792	Difenoconazole	-
191	Mancozeb	IR9792	Epoxiconazole	-
192	Mancozeb	IR9792	Hexaconazole	-
193	Mancozeb	IR9792	Tebuconazole	-
194	Mancozeb	IR9792	Tetraconazole	-
195	Mancozeb	IR9792	Prothioconazole	-
196	Mancozeb	IR9792	-	Azoxystrobin
197	Mancozeb	IR9792	-	Picoxystrobin
198	Mancozeb	IR9792	-	Pyraclostrobin
199	Mancozeb	IR9792	-	Kresoxim-methyl
200	Mancozeb	IR9792	-	Trifloxystrobin
201	Mancozeb	IR9792	Cyproconazole	Azoxystrobin
202	Mancozeb	IR9792	Cyproconazole	Picoxystrobin
203	Mancozeb	IR9792	Cyproconazole	Pyraclostrobin
204	Mancozeb	IR9792	Cyproconazole	Kresoxim-methyl
205	Mancozeb	IR9792	Cyproconazole	Trifloxystrobin
206	Mancozeb	IR9792	Difenoconazole	Azoxystrobin
207	Mancozeb	IR9792	Difenoconazole	Picoxystrobin
208	Mancozeb	IR9792	Difenoconazole	Pyraclostrobin

209	Mancozeb	IR9792	Difenoconazole	Kresoxim-methyl
210	Mancozeb	IR9792	Difenoconazole	Trifloxystrobin
211	Mancozeb	IR9792	Epoxiconazole	Azoxystrobin
212	Mancozeb	IR9792	Epoxiconazole	Picoxystrobin
213	Mancozeb	IR9792	Epoxiconazole	Pyraclostrobin
214	Mancozeb	IR9792	Epoxiconazole	Kresoxim-methyl
215	Mancozeb	IR9792	Epoxiconazole	Trifloxystrobin
216	Mancozeb	IR9792	Hexaconazole	Azoxystrobin
217	Mancozeb	IR9792	Hexaconazole	Picoxystrobin
218	Mancozeb	IR9792	Hexaconazole	Pyraclostrobin
219	Mancozeb	IR9792	Hexaconazole	Kresoxim-methyl
220	Mancozeb	IR9792	Hexaconazole	Trifloxystrobin
221	Mancozeb	IR9792	Tebuconazole	Azoxystrobin
222	Mancozeb	IR9792	Tebuconazole	Picoxystrobin
223	Mancozeb	IR9792	Tebuconazole	Pyraclostrobin
224	Mancozeb	IR9792	Tebuconazole	Kresoxim-methyl
225	Mancozeb	IR9792	Tebuconazole	Trifloxystrobin
226	Mancozeb	IR9792	Tetraconazole	Azoxystrobin
227	Mancozeb	IR9792	Tetraconazole	Picoxystrobin
228	Mancozeb	IR9792	Tetraconazole	Pyraclostrobin
229	Mancozeb	IR9792	Tetraconazole	Kresoxim-methyl

230	Mancozeb	IR9792	Tetraconazole	Trifloxystrobin
231	Mancozeb	IR9792	Prothioconazole	Azoxystrobin
232	Mancozeb	IR9792	Prothioconazole	Picoxystrobin
233	Mancozeb	IR9792	Prothioconazole	Pyraclostrobin
234	Mancozeb	IR9792	Prothioconazole	Kresoxim-methyl
235	Mancozeb	IR9792	Prothioconazole	Trifloxystrobin

In an embodiment of the combinations of the present invention, the preferred succinate dehydrogenase inhibitor fungicide is Bixafen.

In an embodiment, the combinations of the present invention include the following preferred combinations:

S No.	I	II	III	IV
236	Mancozeb	Bixafen	Cyproconazole	-
237	Mancozeb	Bixafen	Difenoconazole	-
238	Mancozeb	Bixafen	Epoxiconazole	-
239	Mancozeb	Bixafen	Hexaconazole	-
240	Mancozeb	Bixafen	Tebuconazole	-
241	Mancozeb	Bixafen	Tetraconazole	-
242	Mancozeb	Bixafen	Prothioconazole	-
243	Mancozeb	Bixafen	-	Azoxystrobin
244	Mancozeb	Bixafen	-	Picoxystrobin
245	Mancozeb	Bixafen	-	Pyraclostrobin
246	Mancozeb	Bixafen	-	Kresoxim-methyl

247	Mancozeb	Bixafen	-	Trifloxystrobin
248	Mancozeb	Bixafen	Cyproconazole	Azoxystrobin
249	Mancozeb	Bixafen	Cyproconazole	Picoxystrobin
250	Mancozeb	Bixafen	Cyproconazole	Pyraclostrobin
251	Mancozeb	Bixafen	Cyproconazole	Kresoxim-methyl
252	Mancozeb	Bixafen	Cyproconazole	Trifloxystrobin
253	Mancozeb	Bixafen	Difenoconazole	Azoxystrobin
254	Mancozeb	Bixafen	Difenoconazole	Picoxystrobin
255	Mancozeb	Bixafen	Difenoconazole	Pyraclostrobin
256	Mancozeb	Bixafen	Difenoconazole	Kresoxim-methyl
257	Mancozeb	Bixafen	Difenoconazole	Trifloxystrobin
258	Mancozeb	Bixafen	Epoxiconazole	Azoxystrobin
259	Mancozeb	Bixafen	Epoxiconazole	Picoxystrobin
260	Mancozeb	Bixafen	Epoxiconazole	Pyraclostrobin
261	Mancozeb	Bixafen	Epoxiconazole	Kresoxim-methyl
262	Mancozeb	Bixafen	Epoxiconazole	Trifloxystrobin
263	Mancozeb	Bixafen	Hexaconazole	Azoxystrobin
264	Mancozeb	Bixafen	Hexaconazole	Picoxystrobin
265	Mancozeb	Bixafen	Hexaconazole	Pyraclostrobin
266	Mancozeb	Bixafen	Hexaconazole	Kresoxim-methyl
267	Mancozeb	Bixafen	Hexaconazole	Trifloxystrobin
268	Mancozeb	Bixafen	Tebuconazole	Azoxystrobin

269	Mancozeb	Bixafen	Tebuconazole	Picoxystrobin
270	Mancozeb	Bixafen	Tebuconazole	Pyraclostrobin
271	Mancozeb	Bixafen	Tebuconazole	Kresoxim-methyl
272	Mancozeb	Bixafen	Tebuconazole	Trifloxystrobin
273	Mancozeb	Bixafen	Tetraconazole	Azoxystrobin
274	Mancozeb	Bixafen	Tetraconazole	Picoxystrobin
275	Mancozeb	Bixafen	Tetraconazole	Pyraclostrobin
276	Mancozeb	Bixafen	Tetraconazole	Kresoxim-methyl
277	Mancozeb	Bixafen	Tetraconazole	Trifloxystrobin
278	Mancozeb	Bixafen	Prothioconazole	Azoxystrobin
279	Mancozeb	Bixafen	Prothioconazole	Picoxystrobin
280	Mancozeb	Bixafen	Prothioconazole	Pyraclostrobin
281	Mancozeb	Bixafen	Prothioconazole	Kresoxim-methyl
282	Mancozeb	Bixafen	Prothioconazole	Trifloxystrobin

In an embodiment of the combinations of the present invention, the preferred succinate dehydrogenase inhibitor fungicide is Fluxapyroxad.

In an embodiment, the combinations of the present invention include the following preferred combinations:

S No.	I	II	III	IV
283	Mancozeb	Fluxapyroxad	Cyproconazole	-
284	Mancozeb	Fluxapyroxad	Difenoconazole	-

285	Mancozeb	Fluxapyroxad	Epoxiconazole	-
286	Mancozeb	Fluxapyroxad	Hexaconazole	-
287	Mancozeb	Fluxapyroxad	Tebuconazole	-
288	Mancozeb	Fluxapyroxad	Tetraconazole	-
289	Mancozeb	Fluxapyroxad	Prothioconazole	-
290	Mancozeb	Fluxapyroxad	-	Azoxystrobin
291	Mancozeb	Fluxapyroxad	-	Picoxystrobin
292	Mancozeb	Fluxapyroxad	-	Pyraclostrobin
293	Mancozeb	Fluxapyroxad	-	Kresoxim-methyl
294	Mancozeb	Fluxapyroxad	-	Trifloxystrobin
295	Mancozeb	Fluxapyroxad	Cyproconazole	Azoxystrobin
296	Mancozeb	Fluxapyroxad	Cyproconazole	Picoxystrobin
297	Mancozeb	Fluxapyroxad	Cyproconazole	Pyraclostrobin
298	Mancozeb	Fluxapyroxad	Cyproconazole	Kresoxim-methyl
299	Mancozeb	Fluxapyroxad	Cyproconazole	Trifloxystrobin
300	Mancozeb	Fluxapyroxad	Difenoconazole	Azoxystrobin
301	Mancozeb	Fluxapyroxad	Difenoconazole	Picoxystrobin
302	Mancozeb	Fluxapyroxad	Difenoconazole	Pyraclostrobin
303	Mancozeb	Fluxapyroxad	Difenoconazole	Kresoxim-methyl
304	Mancozeb	Fluxapyroxad	Difenoconazole	Trifloxystrobin
305	Mancozeb	Fluxapyroxad	Epoxiconazole	Azoxystrobin
306	Mancozeb	Fluxapyroxad	Epoxiconazole	Picoxystrobin
307	Mancozeb	Fluxapyroxad	Epoxiconazole	Pyraclostrobin

308	Mancozeb	Fluxapyroxad	Epoxiconazole	Kresoxim-methyl
309	Mancozeb	Fluxapyroxad	Epoxiconazole	Trifloxystrobin
310	Mancozeb	Fluxapyroxad	Hexaconazole	Azoxystrobin
311	Mancozeb	Fluxapyroxad	Hexaconazole	Picoxystrobin
312	Mancozeb	Fluxapyroxad	Hexaconazole	Pyraclostrobin
313	Mancozeb	Fluxapyroxad	Hexaconazole	Kresoxim-methyl
314	Mancozeb	Fluxapyroxad	Hexaconazole	Trifloxystrobin
315	Mancozeb	Fluxapyroxad	Tebuconazole	Azoxystrobin
316	Mancozeb	Fluxapyroxad	Tebuconazole	Picoxystrobin
317	Mancozeb	Fluxapyroxad	Tebuconazole	Pyraclostrobin
318	Mancozeb	Fluxapyroxad	Tebuconazole	Kresoxim-methyl
319	Mancozeb	Fluxapyroxad	Tebuconazole	Trifloxystrobin
320	Mancozeb	Fluxapyroxad	Tetraconazole	Azoxystrobin
321	Mancozeb	Fluxapyroxad	Tetraconazole	Picoxystrobin
322	Mancozeb	Fluxapyroxad	Tetraconazole	Pyraclostrobin
323	Mancozeb	Fluxapyroxad	Tetraconazole	Kresoxim-methyl
324	Mancozeb	Fluxapyroxad	Tetraconazole	Trifloxystrobin
325	Mancozeb	Fluxapyroxad	Prothioconazole	Azoxystrobin
326	Mancozeb	Fluxapyroxad	Prothioconazole	Picoxystrobin
327	Mancozeb	Fluxapyroxad	Prothioconazole	Pyraclostrobin
328	Mancozeb	Fluxapyroxad	Prothioconazole	Kresoxim-methyl

329	Mancozeb	Fluxapyroxad	Prothioconazole	Trifloxystrobin

In an embodiment of the combinations of the present invention, the preferred succinate dehydrogenase inhibitor fungicide is Furametpyr.

In an embodiment, the combinations of the present invention include the following preferred combinations:

S No.	I	II	III	IV
330	Mancozeb	Furametpyr	Cyproconazole	-
331	Mancozeb	Furametpyr	Difenoconazole	-
332	Mancozeb	Furametpyr	Epoxiconazole	-
333	Mancozeb	Furametpyr	Hexaconazole	-
334	Mancozeb	Furametpyr	Tebuconazole	-
335	Mancozeb	Furametpyr	Tetraconazole	-
336	Mancozeb	Furametpyr	Prothioconazole	-
337	Mancozeb	Furametpyr	-	Azoxystrobin
338	Mancozeb	Furametpyr	-	Picoxystrobin
339	Mancozeb	Furametpyr	-	Pyraclostrobin
340	Mancozeb	Furametpyr	-	Kresoxim-methyl
341	Mancozeb	Furametpyr	-	Trifloxystrobin
342	Mancozeb	Furametpyr	Cyproconazole	Azoxystrobin
343	Mancozeb	Furametpyr	Cyproconazole	Picoxystrobin
344	Mancozeb	Furametpyr	Cyproconazole	Pyraclostrobin
345	Mancozeb	Furametpyr	Cyproconazole	Kresoxim-methyl

346	Mancozeb	Furametpyr	Cyproconazole	Trifloxystrobin
347	Mancozeb	Furametpyr	Difenoconazole	Azoxystrobin
348	Mancozeb	Furametpyr	Difenoconazole	Picoxystrobin
349	Mancozeb	Furametpyr	Difenoconazole	Pyraclostrobin
350	Mancozeb	Furametpyr	Difenoconazole	Kresoxim-methyl
351	Mancozeb	Furametpyr	Difenoconazole	Trifloxystrobin
352	Mancozeb	Furametpyr	Epoxiconazole	Azoxystrobin
353	Mancozeb	Furametpyr	Epoxiconazole	Picoxystrobin
354	Mancozeb	Furametpyr	Epoxiconazole	Pyraclostrobin
355	Mancozeb	Furametpyr	Epoxiconazole	Kresoxim-methyl
356	Mancozeb	Furametpyr	Epoxiconazole	Trifloxystrobin
357	Mancozeb	Furametpyr	Hexaconazole	Azoxystrobin
358	Mancozeb	Furametpyr	Hexaconazole	Picoxystrobin
359	Mancozeb	Furametpyr	Hexaconazole	Pyraclostrobin
360	Mancozeb	Furametpyr	Hexaconazole	Kresoxim-methyl
361	Mancozeb	Furametpyr	Hexaconazole	Trifloxystrobin
362	Mancozeb	Furametpyr	Tebuconazole	Azoxystrobin
363	Mancozeb	Furametpyr	Tebuconazole	Picoxystrobin
364	Mancozeb	Furametpyr	Tebuconazole	Pyraclostrobin
365	Mancozeb	Furametpyr	Tebuconazole	Kresoxim-methyl
366	Mancozeb	Furametpyr	Tebuconazole	Trifloxystrobin
367	Mancozeb	Furametpyr	Tetraconazole	Azoxystrobin

368	Mancozeb	Furametpyr	Tetraconazole	Picoxystrobin
369	Mancozeb	Furametpyr	Tetraconazole	Pyraclostrobin
370	Mancozeb	Furametpyr	Tetraconazole	Kresoxim-methyl
371	Mancozeb	Furametpyr	Tetraconazole	Trifloxystrobin
372	Mancozeb	Furametpyr	Prothioconazole	Azoxystrobin
273	Mancozeb	Furametpyr	Prothioconazole	Picoxystrobin
374	Mancozeb	Furametpyr	Prothioconazole	Pyraclostrobin
375	Mancozeb	Furametpyr	Prothioconazole	Kresoxim-methyl
376	Mancozeb	Furametpyr	Prothioconazole	Trifloxystrobin

In an embodiment of the combinations of the present invention, the preferred succinate dehydrogenase inhibitor fungicide is Penflufen.

In an embodiment, the combinations of the present invention include the following preferred combinations:

S No.	I	II	III	IV
377	Mancozeb	Penflufen	Cyproconazole	-
378	Mancozeb	Penflufen	Difenoconazole	-
379	Mancozeb	Penflufen	Epoxiconazole	-
380	Mancozeb	Penflufen	Hexaconazole	-
381	Mancozeb	Penflufen	Tebuconazole	-
382	Mancozeb	Penflufen	Tetraconazole	-
383	Mancozeb	Penflufen	Prothioconazole	-
384	Mancozeb	Penflufen	-	Azoxystrobin

385	Mancozeb	Penflufen	-	Picoxystrobin
386	Mancozeb	Penflufen	-	Pyraclostrobin
387	Mancozeb	Penflufen	-	Kresoxim-methyl
388	Mancozeb	Penflufen	-	Trifloxystrobin
389	Mancozeb	Penflufen	Cyproconazole	Azoxystrobin
390	Mancozeb	Penflufen	Cyproconazole	Picoxystrobin
391	Mancozeb	Penflufen	Cyproconazole	Pyraclostrobin
392	Mancozeb	Penflufen	Cyproconazole	Kresoxim-methyl
393	Mancozeb	Penflufen	Cyproconazole	Trifloxystrobin
394	Mancozeb	Penflufen	Difenoconazole	Azoxystrobin
395	Mancozeb	Penflufen	Difenoconazole	Picoxystrobin
396	Mancozeb	Penflufen	Difenoconazole	Pyraclostrobin
397	Mancozeb	Penflufen	Difenoconazole	Kresoxim-methyl
398	Mancozeb	Penflufen	Difenoconazole	Trifloxystrobin
399	Mancozeb	Penflufen	Epoxiconazole	Azoxystrobin
400	Mancozeb	Penflufen	Epoxiconazole	Picoxystrobin
401	Mancozeb	Penflufen	Epoxiconazole	Pyraclostrobin
402	Mancozeb	Penflufen	Epoxiconazole	Kresoxim-methyl
403	Mancozeb	Penflufen	Epoxiconazole	Trifloxystrobin
404	Mancozeb	Penflufen	Hexaconazole	Azoxystrobin
405	Mancozeb	Penflufen	Hexaconazole	Picoxystrobin
406	Mancozeb	Penflufen	Hexaconazole	Pyraclostrobin

407	Mancozeb	Penflufen	Hexaconazole	Kresoxim-methyl
408	Mancozeb	Penflufen	Hexaconazole	Trifloxystrobin
409	Mancozeb	Penflufen	Tebuconazole	Azoxystrobin
410	Mancozeb	Penflufen	Tebuconazole	Picoxystrobin
411	Mancozeb	Penflufen	Tebuconazole	Pyraclostrobin
412	Mancozeb	Penflufen	Tebuconazole	Kresoxim-methyl
413	Mancozeb	Penflufen	Tebuconazole	Trifloxystrobin
414	Mancozeb	Penflufen	Tetraconazole	Azoxystrobin
415	Mancozeb	Penflufen	Tetraconazole	Picoxystrobin
416	Mancozeb	Penflufen	Tetraconazole	Pyraclostrobin
417	Mancozeb	Penflufen	Tetraconazole	Kresoxim-methyl
418	Mancozeb	Penflufen	Tetraconazole	Trifloxystrobin
419	Mancozeb	Penflufen	Prothioconazole	Azoxystrobin
420	Mancozeb	Penflufen	Prothioconazole	Picoxystrobin
421	Mancozeb	Penflufen	Prothioconazole	Pyraclostrobin
422	Mancozeb	Penflufen	Prothioconazole	Kresoxim-methyl
423	Mancozeb	Penflufen	Prothioconazole	Trifloxystrobin

In an embodiment of the combinations of the present invention, the preferred succinate dehydrogenase inhibitor fungicide is Sedaxane.

In an embodiment, the combinations of the present invention include the following preferred combinations:

S No.	I	II	III	IV
424	Mancozeb	Sedaxane	Cyproconazole	-
425	Mancozeb	Sedaxane	Difenoconazole	-
426	Mancozeb	Sedaxane	Epoxiconazole	-
427	Mancozeb	Sedaxane	Hexaconazole	-
428	Mancozeb	Sedaxane	Tebuconazole	-
429	Mancozeb	Sedaxane	Tetraconazole	-
430	Mancozeb	Sedaxane	Prothioconazole	-
431	Mancozeb	Sedaxane	-	Azoxystrobin
432	Mancozeb	Sedaxane	-	Picoxystrobin
433	Mancozeb	Sedaxane	-	Pyraclostrobin
434	Mancozeb	Sedaxane	-	Kresoxim-methyl
435	Mancozeb	Sedaxane	-	Trifloxystrobin
436	Mancozeb	Sedaxane	Cyproconazole	Azoxystrobin
437	Mancozeb	Sedaxane	Cyproconazole	Picoxystrobin
438	Mancozeb	Sedaxane	Cyproconazole	Pyraclostrobin
439	Mancozeb	Sedaxane	Cyproconazole	Kresoxim-methyl
440	Mancozeb	Sedaxane	Cyproconazole	Trifloxystrobin
441	Mancozeb	Sedaxane	Difenoconazole	Azoxystrobin
442	Mancozeb	Sedaxane	Difenoconazole	Picoxystrobin
443	Mancozeb	Sedaxane	Difenoconazole	Pyraclostrobin
444	Mancozeb	Sedaxane	Difenoconazole	Kresoxim-methyl

445	Mancozeb	Sedaxane	Difenoconazole	Trifloxystrobin
446	Mancozeb	Sedaxane	Epoxiconazole	Azoxystrobin
447	Mancozeb	Sedaxane	Epoxiconazole	Picoxystrobin
448	Mancozeb	Sedaxane	Epoxiconazole	Pyraclostrobin
449	Mancozeb	Sedaxane	Epoxiconazole	Kresoxim-methyl
450	Mancozeb	Sedaxane	Epoxiconazole	Trifloxystrobin
451	Mancozeb	Sedaxane	Hexaconazole	Azoxystrobin
452	Mancozeb	Sedaxane	Hexaconazole	Picoxystrobin
453	Mancozeb	Sedaxane	Hexaconazole	Pyraclostrobin
454	Mancozeb	Sedaxane	Hexaconazole	Kresoxim-methyl
455	Mancozeb	Sedaxane	Hexaconazole	Trifloxystrobin
456	Mancozeb	Sedaxane	Tebuconazole	Azoxystrobin
457	Mancozeb	Sedaxane	Tebuconazole	Picoxystrobin
458	Mancozeb	Sedaxane	Tebuconazole	Pyraclostrobin
459	Mancozeb	Sedaxane	Tebuconazole	Kresoxim-methyl
460	Mancozeb	Sedaxane	Tebuconazole	Trifloxystrobin
461	Mancozeb	Sedaxane	Tetraconazole	Azoxystrobin
462	Mancozeb	Sedaxane	Tetraconazole	Picoxystrobin
463	Mancozeb	Sedaxane	Tetraconazole	Pyraclostrobin
464	Mancozeb	Sedaxane	Tetraconazole	Kresoxim-methyl
465	Mancozeb	Sedaxane	Tetraconazole	Trifloxystrobin
466	Mancozeb	Sedaxane	Prothioconazole	Azoxystrobin

467	Mancozeb	Sedaxane	Prothioconazole	Picoxystrobin
468	Mancozeb	Sedaxane	Prothioconazole	Pyraclostrobin
469	Mancozeb	Sedaxane	Prothioconazole	Kresoxim-methyl
470	Mancozeb	Sedaxane	Prothioconazole	Trifloxystrobin

The combinations of the present invention may be formulated in the form of a composition.

In an embodiment, the present invention may provide a composition comprising:
(a) at least one succinate dehydrogenase inhibitor fungicide;
(b) at least one dithiocarbamate fungicide;
(c) at least one quinone outside inhibitor; and
(d) at least one agrochemically acceptable excipient.

In an embodiment, the present invention may provide a composition comprising:
(a) at least one succinate dehydrogenase inhibitor fungicide;
(b) at least one dithiocarbamate fungicide;
(c) at least one ergostrol biosynthesis inhibitor; and
(d) at least one agrochemically acceptable excipient.

In an embodiment, the present invention may provide a composition comprising:
(a) at least one succinate dehydrogenase inhibitor fungicide;
(b) at least one dithiocarbamate fungicide;
(c) at least one a quinone outside inhibitor;
(d) at least one ergostrol biosynthesis inhibitor; and
(e) at least one agrochemically acceptable excipient.

The amount of a composition according to the invention to be applied, will depend on various factors, such as the subject of the treatment, such as, for example plants, soil or seeds; the type of treatment, such as, for example spraying, dusting or seed dressing; the purpose of the treatment, such as, for example prophylactic or therapeutic disease control; in case of disease control the type of fungi to be controlled or the application time. This amount of the combinations of the present invention to be applied can be readily deduced by a skilled agronomist.

Thus in an embodiment, the present invention may provide compositions comprising:

(i) at least one pyrazaole carboxamide selected from benzovindiflupyr, bixafen, fluxapyroxad, furametpyr, isopyrazam, penflufen, penthiopyrad, and sedaxane;

(ii) at least one quinone outside inhibitor, and/or at least one ergostrol biosynthesis inhibitor; and

(iii) at last one dithiocarbamate fungicide;

said fungicides being combined in agrochemically acceptable amounts.

In an embodiment, the total amount of succinate dehydrogenase inhibitor in the composition may typically be in the range of 0.1 to 99% by weight, preferably 0.2 to 90% by weight. The total amount of dithiocarbamate fungicide in the composition may be in the range of 0.1 to 99% by weight. The total amount of ergostrol biosynthesis inhibitor in the composition may be in the range of 0.1 to 99% by weight. The total amount of Quinone outside inhibitor in the composition may be in the range of 0.1 to 99% by weight.

In an embodiment, the constituent fungicides of the combination of the present invention may be admixed in ratio of (1-80): (1-80): (1-80) of the dithiocarbamate fungicide, succinate dehydrogenase inhibitor fungicide and the third fungicide respectively.

In an embodiment, the constituents of the composition of the present invention may be tank mixed and sprayed at the locus of the infection, or may be alternatively be mixed with surfactants and then sprayed.

In an embodiment, the constituents of the composition of the present invention may be used for foliar application, ground or applications to plant propagation materials.

In an embodiment, the compositions of the present invention may typically be produce by mixing the actives in the composition with an inert carrier, and adding surfactants and other adjuvants and carriers as needed and formulated into solid, or liquid formulations, including but not limited to wettable powders, granules, dusts, Soluble (liquid) concentrates, suspension concentrates, oil in water emulsion, water in oil emulsion, emulsifiable concentrates, capsule suspensions, ZC formulations, oil dispersions or other known formulation types. The composition may also be used for treatment of a plant propagation material such as seeds etc.

Examples of the solid carrier used in formulation include fine powders or granules such as minerals such as kaolin clay, attapulgite clay, bentonite, montmorillonite, acid white clay, pyrophyllite, talc, diatomaceous earth and calcite; natural organic materials such as corn rachis powder and walnut husk powder; synthetic organic materials such as urea; salts such as calcium carbonate and ammonium sulfate;

synthetic inorganic materials such as synthetic hydrated silicon oxide; and as a liquid carrier, aromatic hydrocarbons such as xylene, alkylbenzene and methylnaphthalene; alcohols such as 2-propanol, ethyleneglycol, propylene glycol, and ethylene glycol monoethyl ether; ketones such as acetone, cyclohexanone and isophorone; vegetable oil such as soybean oil and cotton seed oil; petroleum aliphatic hydrocarbons, esters, dimethylsulfoxide, acetonitrile and water.

Examples of the surfactant include anionic surfactants such as alkyl sulfate ester salts, alkylaryl sulfonate salts, dialkyl sulfosuccinate salts, polyoxyethylene alkylaryl ether phosphate ester salts, lignosulfonate salts and naphthalene sulfonate formaldehyde polycondensates; and nonionic surfactants such as polyoxyethylene alkyl aryl ethers, polyoxyethylene alkylpolyoxypropylene block copolymers and sorbitan fatty acid esters and cationic surfactants such as alkyltrimethylammonium salts.

Examples of the other formulation auxiliary agents include water-soluble polymers such as polyvinyl alcohol and polyvinylpyrrolidone, polysaccharides such as Arabic gum, alginic acid and the salt thereof, CMC (carboxymethyl- cellulose) , Xanthan gum, inorganic materials such as aluminum magnesium silicate and alumina sol, preservatives, coloring agents and stabilization agents such as PAP (acid phosphate isopropyl) and BHT.

The compositions according to the present invention is effective for the following plant diseases:

Disease in rice: Blast (Magnaporthe grisea), Helminthosporium leaf spot (Cochliobolus miyabeanus), sheath blight (Rhizoctonia solani) , and bakanae disease (Gibberella fujikuroi).

Diseases in wheat: powdery mildew (Erysiphe graminis) , Fusariuin head blight (Fusarium graminearum, F. avenacerum, F. culmorum, Microdochium nivale) , rust (Puccinia striiformis, P. graminis, P. recondita) , pink snow mold (Micronectriella nivale), Typhula snow blight (Typhula sp .) , loose smut (Ustilago tritici) , bunt (Tilletia caries) , eyespot (Pseudocercosporella herpotrichoides) , leaf blotch (Mycosphaerella graminicola) , glume blotch (Stagonospora nodorum) , septoria, and yellow spot (Pyrenophora tritici-repentis) .

Diseases of barley: powdery mildew (Erysiphe graminis), Fusarium head blight (Fusarium graminearum, F. avenacerum, F. culmorum, Microdochium nivale), rust (Puccinia striiformis, P. graminis, P. hordei) , loose smut (Ustilago nuda) , scald (Rhynchosporium secalis) , net blotch (Pyrenophora teres), spot blotch (Cochliobolus sativus), leaf stripe (Pyrenophora graminea) , and Rhizoctonia damping-off (Rhizoctonia solani) .

Diseases in corn: smut (Ustilago maydis), brown spot (Cochliobolus heterostrophus), copper spot (Gloeocercospora sorghi), southern rust (Puccinia polysora), gray leaf spot (Cercospora zeae-maydis), white spot (Phaeosphaeria mydis and/or Pantoea ananatis) and Rhizoctonia damping-off (Rhizoctonia solani).

Diseases of citrus: melanose (Diaporthe citri), scab (Elsinoe fawcetti), penicillium rot (Penicillium digitatum, P.italicum), and brown rot (Phytophthora parasitica, Phytophthora citrophthora) .

Diseases of apple: blossom blight (Monilinia mali), canker (Valsa ceratosperma), powdery mildew (Podosphaera leucotricha), Alternaria leaf spot (Alternaria alternata apple pathotype) , scab (Venturia inaequalis) , powdery mildew, bitter rot (Colletotrichum acutatum), crown rot (Phytophtora cactorum) , blotch (Diplocarpon mali) , and ring rot (Botryosphaeria berengeriana) .

Diseases of pear: scab (Venturia nashicola, V. pirina) , powdery mildew, black spot (Alternaria alternata Japanese pear pathotype) , rust (Gymnosporangium haraeanum) , and phytophthora fruit rot (Phytophtora cactorum).

Diseases of peach: brown rot (Monilinia fructicola), powdery mildew, scab (Cladosporium carpophilum), and phomopsis rot (Phomopsis sp.).

Diseases of grape: anthracnose (Elsinoe ampelina) , ripe rot (Glomerella cingulata), powdery mildew (Uncinula necator) , rust (Phakopsora ampelopsidis) , black rot (Guignardia bidwellii) , botrytis, and downy mildew (Plasmopara viticola) .

Diseases of Japanese persimmon: anthracnose (Gloeosporium kaki) , and leaf spot (Cercospora kaki, Mycosphaerella nawae) .

Diseases of gourd: anthracnose (Colletotrichum lagenarium) , powdery mildew (Sphaerotheca fuliginea) , gummy stem blight (Mycosphaerella melonis) , Fusarium wilt (Fusarium oxysporum) , downy mildew (Pseudoperonospora cubensis) , Phytophthora rot (Phytophthora sp.) , and damping-off (Pythium sp .).

Diseases of tomato: early blight (Alternaria solani) , leaf mold (Cladosporium fulvum) , and late blight (Phytophthora infestans) .

Diseases of eggplant: brown spot (Phomopsis vexans) , and powdery mildew (Erysiphe cichoracearum) Diseases of cruciferous vegetables: Alternaria leaf spot (Alternaria japonica) , white spot (Cercosporella brassicae) , clubroot (Plasmodiophora brassicae) , and downy mildew (Peronospora parasitica) .

Diseases of onion: rust (Puccinia allii) , and downy mildew (Peronospora destructor).

Diseases of soybean: purple seed stain (Cercospora kikuchii) , sphaceloma scad (Elsinoe glycines) , pod and stem blight (Diaporthe phaseolorum var. sojae) , septoria brown spot (Septoria glycines), frogeye leaf spot (Cercospora sojina), rust (Phakopsora pachyrhizi) , Yellow rust, brown stem rot (Phytophthora sojae), and Rhizoctonia damping-off (Rhizoctonia solani) .

Diseases of kidney bean: anthracnose (Colletotrichum lindemthianum) . Diseases of peanut: leaf spot (Cercospora personata), brown leaf spot (Cercospora arachidicola) and southern blight (Sclerotium rolfsii).

Diseases of garden pea: powdery mildew (Erysiphe pisi) , and root rot (Fusarium solani f. sp. pisi) .

Diseases of potato: early blight (Alternaria solani), late blight (Phytophthora infestans), pink rot (Phytophthora erythroseptica), and powdery scab (Spongospora subterranean f. sp. subterranea).

Diseases of strawberry: powdery mildew (Sphaerotheca humuli), and anthracnose (Glomerella cingulata).

Diseases of tea: net blister blight (Exobasidium reticulatum), white scab (Elsinoe leucospila) , gray blight (Pestalotiopsis sp.), and anthracnose (Colletotrichum theae-sinensis) .

Diseases of tobacco: brown spot (Alternaria longipes) , powdery mildew (Erysiphe cichoracearum), anthracnose (Colletotrichum tabacum), downy mildew (Peronospora tabacina) , and black shank (Phytophthora nicotianae).

Diseases of rapeseed: sclerotinia rot (Sclerotinia sclerotiorum) , and Rhizoctonia damping-off (Rhizoctonia solani) . Diseases of cotton: Rhizoctonia damping-off (Rhizoctonia solani) .

Diseases of sugar beat: Cercospora leaf spot (Cercospora beticola) , leaf blight (Thanatephorus cucumeris), Root rot (Thanatephorus cucumeris), and Aphanomyces root rot (Aphanomyces cochlioides) .

Diseases of rose: black spot (Diplocarpon rosae) , powdery mildew (Sphaerotheca pannosa) , and downy mildew (Peronospora sparsa) . Diseases of chrysanthemum and asteraceous plants: downy mildew (Bremia lactucae), leaf blight (Septoria chrysanthemi-indici) , and white rust (Puccinia horiana).

Diseases of various groups: diseases caused by Pythium spp. (Pythium aphanidermatum, Pythium debarianum, Pythium graminicola, Pythium irregulare,

Pythium ultimum), gray mold. (Botrytis cinerea), and Sclerotinia rot (Sclerotinia sclerotiorum).

Disease of Japanese radish: Alternaria leaf spot (Alternaria brassicicola).

Diseases of turfgrass: dollar spot (Sclerotinia homeocarpa), and brown patch and large patch (Rhizoctonia solani).

Disease of banana: Black sigatoka (Mycosphaerella fijiensis), Yellow sigatoka (Mycosphaerella musicola).

Disease of sunflower: downy mildew (Plasmopara halstedii) .

Seed diseases or diseases in the early stages of the growth of various plants caused by Aspergillus spp., Penicillium spp., Fusarium spp., Gibberella spp., Tricoderma spp., Thielaviopsis spp., Rhizopus spp., Mucor spp., Corticium spp., Phoma spp., Rhizoctonia spp. and Diplodia spp.

Viral diseases of various plants mediated by Polymixa spp. or Olpidium spp. and so on.

The compositions of the present invention can be used in agricultural lands such as fields, paddy fields, lawns and orchards or in non-agricultural lands. The present invention may be used to control diseases in agricultural lands for cultivating the plants without any phytotoxicity to the plant.

Examples of the crops on which the present compositions may be used include but are not limited to corn, rice, wheat, barley, rye, oat, sorghum, cotton, soybean, peanut, buckwheat, beet, rapeseed, sunflower, sugar cane, tobacco, etc.; vegetables: solanaceous vegetables such as eggplant, tomato, pimento, pepper, potato, etc., cucurbit vegetables such as cucumber, pumpkin, zucchini, water melon, melon, squash, etc., cruciferous vegetables such as radish, white turnip, horseradish, kohlrabi, Chinese cabbage, cabbage, leaf mustard, broccoli, cauliflower, etc., asteraceous vegetables such as burdock, crown daisy, artichoke, lettuce, etc, liliaceous vegetables such as green onion, onion, garlic, and asparagus, ammiaceous vegetables such as carrot, parsley, celery, parsnip, etc., chenopodiaceous vegetables such as spinach, Swiss chard, etc., lamiaceous vegetables such as Perilla frutescens, mint, basil, etc, strawberry, sweet potato, Dioscorea japonica, colocasia, etc., flowers, foliage plants, turf grasses, fruits: pome fruits such apple, pear, quince, etc, stone fleshy fruits such as peach, plum, nectarine, Prunus mume, cherry fruit, apricot, prune, etc., citrus fruits such as orange, lemon, rime, grapefruit, etc., nuts such as chestnuts, walnuts, hazelnuts, almond, pistachio, cashew nuts, macadamia nuts, etc. berries such as blueberry, cranberry, blackberry, raspberry, etc., grape, kaki fruit, olive, plum, banana, coffee, date palm, coconuts, etc., trees other than fruit trees; tea, mulberry, flowering plant, trees such as ash, birch, dogwood, Eucalyptus, Ginkgo biloba, lilac, maple, Quercus, poplar, Judas tree, Liquidambar formosana, plane tree, zelkova, Japanese arborvitae, fir wood, hemlock, juniper, Pinus, Picea, and Taxus cuspidate, etc.

In an embodiment, the constituent fungicides of the combination of the present invention may be admixed in ratio of (1-80): (1-80): (1-80): (1:80)

In an aspect, the present invention may provide methods of controlling fungal diseases comprising applying a combination comprising:

(a) at least one succinate dehydrogenase inhibitor fungicide;

(b) at least one quinone outside inhibitor and/or at least one ergostrol biosynthesis inhibitor; and

(c) at least one dithiocarbamate fungicide.

In an embodiment, the succinate dehydrogenase inhibitor fungicide, the quinone outside inhibitor fungicide, the ergosterol biosynthesis inhibitor fungicide, and the dithiocarbamate fungicide may be selected according to any of the preferred embodiments of the combinations described hereinabove.

The combinations of the present invention may be sold as a pre-mix composition or a kit of parts such that individual actives may be mixed before spraying. Alternatively, the kit of parts may contain succinate dehydrogenase inhibitor fungicide and the dithiocarbamate fungicide pre-mixed and the third active may be admixed with an adjuvant such that the two components may be tank mixed before spraying.

The composition of the present invention maybe applied simultaneously as a tank mix or a formulation or may be applied sequentially. The application may be made to the soil before emergence of the plants, either pre-planting or post-planting. The application may be made as a foliar spray at different timings during crop development, with either one or two applications early or late post-emergence.

The compositions according to the invention can be applied before or after infection of the useful plants or the propagation material thereof by the fungi.

As will be demonstrated in the examples, the addition of a dithiocarbamate fungicide to a combination of succinate dehydrogenase inhibitors which are combined with Quinone outside inhibitors and/or ergosterol biosynthesis inhibitors, greatly improved the disease control as well as improved yield and demonstrated a synergistic effect. The lower the mixture performance in the disease control, the greater the additional benefit of the mancozeb when added to the compositions of the present invention.

Examples: Studies were conducted to study the addition of dithiocarbamate fungicides to succinate dehydrogenase inhibitor fungicides and at least one other fungicide and the contribution of the dithiocarbamate to the efficacy of these mixtures. Experiments were conducted over a period of two years to study the effect of the addition of dithiocarbamates on the efficacy of succinate dehydrogenase inhibitors alone and when combined with a co-fungicide such as a Quinone outside inhibitors and/or ergosterol biosynthesis inhibitor fungicide. Doses tested were at rates of 1500 g/ha for Mancozeb, 150 ml/ha for the ergosterol biosynthesis inhibitor, 200 g/ha for the Quinone outside inhibitor, 1000 g/ha and 200 g/ha for succinate dehydrogenase inhibitor fungicides. The combinatios were tested for efficacy of disease control in soybean for the control of Asian soybean rust. The trials were carried out at various locations in India.

The test were conducted on soybean cultivar Monsoy 9144 RR. The commercially available individual active ingredients were used at the indicated dosages.

Table 1: Table 1 shows the efficacy of mancozeb when added to combinations containing succinate dehydrogenase inhibitor fungicides and ergosterol biosynthesis inhibitor.

Treatment	Dose rates (ml/g/ha)	Mean percent disease control 2015/16	2016/17
Prothioconazole + Benzovindiflupyr	150+200	88.04	71.04
Prothioconazole + Benzovindiflupyr+ Mancozeb	150+200+1500	95.07	95.07
Prothioconazole + Isopyrazam	150+1000	87.14	70.23
Prothioconazole + Isopyrazam+ Mancozeb	150+1000+1500	93.4	93.07
Prothioconazole + Penthoipyrad	150+1000	83.33	68.15
Prothioconazole + Penthiopyrad + Mancozeb	150+1000+1500	93.07	92.18

Table 1 clearly demonstrates the increase in control when mancozeb is added to the combination of ergosterol biosynthesis inhibitors and succinate dehydrogenase inhibitor fungicides.

Table 2: Table 2 demonstrates effiacacy when mancozeb is added to combinations of succinate dehydrogenase inhibitor fungicides and quinone outside inhibitor fungicides and ergosterol biosynthesis inhibitors.

Treatment	Dose rates (ml/g/ha)	Mean percent disease control 2015/16	2016/17
Prothioconazole + Benzovindiflupyr + Azoxystrobin	150+200+500	93.07	91.07

Prothioconazole + Benzovindiflupyr + Azoxystrobin + Mancozeb	150+ 200+ 500+ 1500	96.36	95.03

Table 2 clearly demonstrates the importance of adding mancozeb to the combination. The addition of mancozeb improved disease control.

It was thus found that the incorporation of mancozeb greatly increased efficacy and disease control of the succinate dehydrogenase inhibitor fungicide treatments when mixed with ergosterol biosynthesis inhibitors or quinone outside inhibitors. It was thus concluded that the addition of mancozeb enhanced the efficacy of the combination and surpsingly gave a synergistic effect. The addition of a dithiocarbamate increased disease control and improved yield of plants. The instant invention is more specifically explained by above examples. However, it should be understood that the scope of the present invention is not limited by the examples in any manner. It will be appreciated by any person skilled in this art that the present invention includes aforesaid examples and further can be modified and altered within the technical scope of the present invention.

While the foregoing written description of the invention enables one of ordinary skill to make and use what is considered presently to be the best mode thereof, those of ordinary skill will understand and appreciate the existence of variations, combinations, and equivalents of the specific embodiment, method, and examples herein. The invention should therefore not be limited by the above described embodiment, method, and examples, but by all embodiments and methods within the scope and spirit of the invention.

CLAIMS

1. A fungicidal combination comprising at least one succinate dehydrogenase inhibitor fungicide, at least one dithiocarbamate fungicide, and at least another fungicide.

2. The combination of claim 1, wherein the dithiocarbamate fungicide is selected from amobam, asomate, azithiram, carbamorph, cufraneb, cuprobam, disulfiram, ferbam, metam, nabam, tecoram, thiram, urbacide, ziram, dazomet, etem, milneb, mancopper, mancozeb, maneb, metiram, polycarbamate, propineb and zineb.

3. The combination of claim 2, wherein the dithiocarbamate fungicide is mancozeb.

4. The combination of claim 1, wherein the succinate dehydrogenase inhibitor is selected from pyrazole carboxamide class of succinate dehydrogenase inhibitor fungicides.

5. The combination as claimed in claim 4, wherein the pyrazole carboxamide class of succinate dehydrogenase inhibitor fungicide is selected from benzovindiflupyr, bixafen, fluxapyroxad, furametpyr, isopyrazam, penflufen, penthiopyrad, and sedaxane.

6. The combination as claimed in claim 1, wherein atleast another fungicide is selected from an atleast one of ergosterol biosynthesis inhibitor fungicide, and quinone outside inhibitor fungicide.

7. The combination as claimed in claim 6, wherein the ergosterol biosynthesis inhibitors is selected azaconazole, bitertanol, bromuconazole, cyproconazole, difenoconazole, diniconazole, epoxiconazole, etaconazole, fenbuconazole, fluquinconazole, flusilazole, flutriafol, hexaconazole, imibenconazole, Ipconazole, metconazole, myclobutanil, penconazole, Propiconazole, simeconazole, tebuconazole, tetraconazole, triadimefon, triadimenol, triticonazole, prothioconazole, imazalil, oxpoconazole, pefurazoate, prochloraz, triflumizole, fenarimol, nuarimol, pyrifenox , pyrisoxazole, triforine and mixtures thereof.

8. The combination as claimed in claim 6, wherein the Quinone outside (Qo) inhibitor fungicide is selected from azoxystrobin, coumoxystrobin, enoxastrobin, flufenoxystrobin, picoxystrobin, pyraoxystrobin, mandestrobin, pyraclostrobin, pyrametostrobin, triclopyricarb, kresoxim-methyl, dimoxystrobin, fenaminostrobin, metominostrobin, trifloxystrobin, famoxadone, fluoxastrobin, fenamidone, pyribencarb and mixtures thereof.

9. A fungicidal combination comprising at least one succinate dehydrogenase inhibitor fungicide, at least one dithiocarbamate fungicide and at least two other fungicides.

10. The combination as claimed in claim 1 comprising:

(a) Mancozeb; and

(b) Isopyrazam, benzovindiflupyr, penthiopyrad, boscalid, fluindapyr, bixafen, fluxapyroxad, furametpyr, penflufen, or sedaxane; and

(c) Cyproconazole, difenoconazole, epoxiconazole, hexaconazole, hexaconazole, tebuconazole, tetraconazole, prothioconazole,

azoxystrobin, picoxystrobin, pyraclostrobin, kresoxim-methyl, trifloxystrobin, or combinations thereof.

11. The combination as claimed in claim 1 comprising:

(a) Mancozeb; and

(b) Benzovindiflupyr, isopyrazam, or penthipyrad; and

(c) Prothioconazole and/or azoxystrobin.

12. A composition comprising:

(a) at least one succinate dehydrogenase inhibitor fungicide;

(b) at least one dithiocarbamate fungicide;

(c) at least one ergostrol biosynthesis inhibitor and/or at least one a quinone outside inhibitor; and

(d) at least one agrochemically acceptable excipient.

13. The composition as claimed in claim 12, wherein the composition is formulated into wettable powders, granules, dusts, Soluble (liquid) concentrates, suspension concentrates, oil in water emulsion, water in oil emulsion, emulsifiable concentrates, capsule suspensions, ZC formulations, oil dispersions.

14. The combination as claimed in any one of the preceding claims, wherein the constituent fungicides of the combination are admixed in ratio of (1-80): (1-80): (1-80): (1:80).

15. The combination as claimed in any one of the preceding claims, wherein the total amount of succinate dehydrogenase inhibitor in the composition is in the range of 0.1 to 99% by weight, the total amount of dithiocarbamate

fungicide in the composition is in the range of 0.1 to 99% by weight; the total amount of ergostrol biosynthesis inhibitor in the composition is in the range of 0.1 to 99% by weight; and the total amount of Quinone outside inhibitor in the composition is in the range of 0.1 to 99% by weight.

16. The composition as claimed in any one of the preceding claims, wherein the composition is used for foliar application, or applications to plant propagation materials.

17. A method of controlling fungal diseases comprising applying to the locus of the plant a combination comprising:

(a) at least one succinate dehydrogenase inhibitor fungicide;

(b) at least one quinone outside inhibitor and/or at least one ergostrol biosynthesis inhibitor; and

(c) at least one dithiocarbamate fungicide.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

First Named
Inventor: Carlos Eduardo FABRI

For: Fungicidal Combinations

VIA EFS
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

PRELIMINARY AMENDMENT

Sir:

This preliminary amendment is submitted with the application for entry into the U.S. National Phase. This application is based on PCT/IB2017/056710, filed on October 30, 2017.

Applicants expressly request U.S. National Stage processing upon completion of the requirements under 35 U.S.C. §371(f).

In connection with the filing of this National Phase application, please make the following preliminary amendments prior to payment of the fees and examination.

Prior to examination, please amend the application as follows.

IN THE SPECIFICATION

Please add the following new paragraph after the title before the background.

CROSS REFERENCE TO RELATED APPLICATIONS

This application is a National Stage application of PCT/IB2017/056710, filed on October 30, 2017, which claims the benefit of Indian Application No. 201631037704, filed on November 4, 2016, both of which are incorporated by reference in their entirety herein.

IN THE CLAIMS

1. (Original) A fungicidal combination comprising at least one succinate dehydrogenase inhibitor fungicide, at least one dithiocarbamate fungicide, and at least another fungicide.

2. (Original) The combination of claim 1, wherein the dithiocarbamate fungicide is selected from amobam, asomate, azithiram, carbamorph, cufraneb, cuprobam, disulfiram, ferbam, metam, nabam, tecoram, thiram, urbacide, ziram, dazomet, etem, milneb, mancopper, mancozeb, maneb, metiram, polycarbamate, propineb and zineb.

3. (Original) The combination of claim 2, wherein the dithiocarbamate fungicide is mancozeb.

4. (Currently Amended) The combination of claim 1, wherein the succinate dehydrogenase inhibitor is from a ~~selected from~~ pyrazole carboxamide class of succinate dehydrogenase inhibitor fungicides.

5. (Original) The combination as claimed in claim 4, wherein the pyrazole carboxamide class of succinate dehydrogenase inhibitor fungicide is selected from benzovindiflupyr, bixafen, fluxapyroxad, furametpyr, isopyrazam, penflufen, penthiopyrad, and sedaxane.

6. (Currently Amended) The combination as claimed in claim 1, wherein the at least another fungicide is selected from an ~~atleast one of~~ ergosterol biosynthesis inhibitor fungicide, a~~nd~~ quinone outside inhibitor fungicide, and combinations thereof.

7. (Currently Amended) The combination as claimed in claim 6, wherein the ergosterol biosynthesis inhibitor~~s~~ is selected from azaconazole, bitertanol, bromuconazole,

cyproconazole, difenoconazole, diniconazole, epoxiconazole, etaconazole, fenbuconazole, fluquinconazole, flusilazole, flutriafol, hexaconazole, imibenconazole, Ipconazole, metconazole, myclobutanil, penconazole, Propiconazole, simeconazole, tebuconazole, tetraconazole, triadimefon, triadimenol, triticonazole, prothioconazole, imazalil, oxpoconazole, pefurazoate, prochloraz, triflumizole, fenarimol, nuarimol, pyrifenox , pyrisoxazole, triforine, and mixtures thereof.

8. (Currently Amended) The combination as claimed in claim 6, wherein the Quinone outside (Qo) inhibitor fungicide is selected from azoxystrobin, coumoxystrobin, enoxastrobin, flufenoxystrobin, picoxystrobin, pyraoxystrobin, mandestrobin, pyraclostrobin, pyrametostrobin, triclopyricarb, kresoxim-methyl, dimoxystrobin, fenaminostrobin, metominostrobin, trifloxystrobin, famoxadone, fluoxastrobin, fenamidone, pyribencarb, and mixtures thereof.

9. (Currently Amended) A fungicidal combination comprising at least one succinate dehydrogenase inhibitor fungicide, at least one dithiocarbamate fungicide, and at least two addiitonal ~~other~~ fungicides.

10. (Currently Amended) The combination as claimed in claim 1, comprising:

(a) m~~M~~ancozeb as the at least one dithiocarbamate fungicide; ~~and~~

(b) i~~I~~sopyrazam, benzovindiflupyr, penthiopyrad, boscalid, fluindapyr, bixafen, fluxapyroxad, furametpyr, penflufen, or sedaxane as the succinate dehydrogenase inhibitor; and

(c) c~~C~~yproconazole, difenoconazole, epoxiconazole, hexaconazole, hexaconazole, tebuconazole, tetraconazole, prothioconazole, azoxystrobin, picoxystrobin, pyraclostrobin, kresoxim-methyl, trifloxystrobin, or combinations thereof as the at least another fungicide.

11. (Currently Amended) The combination as claimed in claim 1 comprising:

(a) m~~M~~ancozeb as the at least one dithiocarbamate fungicide; ~~and~~

(b) p~~B~~enzovindiflupyr, isopyrazam, or penthipyrad as the succinate dehydrogenase inhibitor; and

(c) p~~P~~rothioconazole and/or azoxystrobin as the at least another fungicide.

12. (Currently Amended) A composition comprising:

(a) at least one succinate dehydrogenase inhibitor fungicide;

(b) at least one dithiocarbamate fungicide;

(c) at least one ergostrol biosynthesis inhibitor and/or at least one ~~a~~ quinone outside inhibitor; and

(d) at least one agrochemically acceptable excipient.

13. (Currently Amended) The composition as claimed in claim 12, wherein the composition is formulated into wettable powders, granules, dusts, s~~S~~oluble (liquid) concentrates, suspension concentrates, oil in water emulsion, water in oil emulsion, emulsifiable concentrates, capsule suspensions, ZC formulations, or oil dispersions.

14. (Currently Amended) The combination as claimed in claim 1 ~~any one of the preceding claims~~, wherein the constituent fungicides of the combination are admixed in ratio of (1-80): (1-80): (1-80): (1:80).

15. (Currently Amended) The combination as claimed in claim 12 ~~any one of the preceding claims~~, wherein the total amount of succinate dehydrogenase inhibitor in the composition is in the range of 0.1 to 99% by weight, the total amount of dithiocarbamate fungicide in the composition is in the range of 0.1 to 99% by weight; the total amount of ergostrol biosynthesis inhibitor in the composition is in the range of 0.1 to 99% by weight; and the total amount of q~~Q~~uinone outside inhibitor in the composition is in the range of 0.1 to 99% by weight.

16. (Currently Amended) A method of ~~The composition as claimed in any one of the preceding claims, wherein the composition is used for~~ foliar application, or ~~applications to~~ plant propagation, comprising applying the composition of claim 1 to a plant ~~materials~~.

17. (Currently Amended) A method of controlling fungal diseases comprising, applying to the locus of the plant a combination comprising:

(a) at least one succinate dehydrogenase inhibitor fungicide;

(b) at least one quinone outside inhibitor and/or at least one ergostrol biosynthesis inhibitor; and

(c) at least one dithiocarbamate fungicide.

REMARKS

Claims 1-17 are pending in the present Application. No Claims have been canceled, claims 4, and 6-17 have been amended, and no claims have been added, leaving Claims 1-17 for consideration upon entry of the present Amendment.

The Specification has been amended to add a priority statement.

Claims 4 and 6-17 have been amended to correct typographical errors and for consistency with US practice.

No new matter has been introduced by these amendments.

Consideration and allowance of the claims is respectfully requested in view of the above amendments and the following remarks.

If there are any additional charges with respect to this Amendment or otherwise, please charge them to Deposit Account No. 06-1130.

Respectfully submitted,

CANTOR COLBURN LLP

/Karen A. LeCuyer/

By _____

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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 16/347,283	Filing Date 05/03/2019	☐ To be Mailed

ENTITY: ☑ LARGE ☐ SMALL ☐ MICRO

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA		RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A		N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A		N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*		x $100 =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*		x $460 =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).				
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))					
* If the difference in column 1 is less than zero, enter "0" in column 2.				TOTAL	

APPLICATION AS AMENDED - PART II

		(Column 1)		(Column 2)	(Column 3)			
AMENDMENT	05/03/2019	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	* 17	Minus	** 20	= 0		x $100 =	0
	Independent (37 CFR 1.16(h))	* 4	Minus	*** 3	= 1		x $460 =	460
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	460

		(Column 1)		(Column 2)	(Column 3)			
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA		RATE ($)	ADDITIONAL FEE ($)
	Total (37 CFR 1.16(i))	*	Minus	**	=		x $0 =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=		x $0 =	
	☐ Application Size Fee (37 CFR 1.16(s))							
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							
							TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.	SLIE
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".	/PARTHENIA D MERRILL/
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".	
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.	

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44*bis*)

Applicant's or agent's file reference PCT00717	**FOR FURTHER ACTION**	See item 4 below
International application No. PCT/IB2017/056710	International filing date *(day/month/year)* 30 October 2017 (30.10.2017)	Priority date *(day/month/year)* 04 November 2016 (04.11.2016)
International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237		
Applicant UPL LTD		

1. This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 *bis*.1(a).

2. This REPORT consists of a total of 5 sheets, including this cover sheet.

   In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.

3. This report contains indications relating to the following items:

☒	Box No. I	Basis of the report
☐	Box No. II	Priority
☐	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
☐	Box No. IV	Lack of unity of invention
☒	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
☐	Box No. VI	Certain documents cited
☐	Box No. VII	Certain defects in the international application
☐	Box No. VIII	Certain observations on the international application

4. The International Bureau will communicate this report to designated Offices in accordance with Rules 44*bis*.3(c) and 93*bis*.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44*bis* .2).

Date of issuance of this report
07 May 2019 (07.05.2019)

The International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland

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Authorized officer

Cécile Chatel

e-mail: ro.ib@wipo.int

Form PCT/IB/373 (January 2004)

PATENT COOPERATION TREATY

From the:
INTERNATIONAL SEARCHING AUTHORITY

To:

MAJUMDAR, Subhatosh
5, Harish Mukherjee Road, West Bengal,
700 025 Kolkata
India

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43*bis*.1)

Date of mailing *(day/month/year)*
12 January 2018

Applicant's or agent's file reference
PCT00717

FOR FURTHER ACTION
See paragraph 2 below

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/IB2017/056710	30 October 2017	04 November 2016

International Patent Classification (IPC) or both national classification and IPC
A01N 47/14 (2006.01) ***A01N 43/56 (2006.01)*** ***A01N 43/653 (2006.01)*** ***A01N 43/54 (2006.01)*** ***A01N 43/50 (2006.01)*** ***A01N 37/50 (2006.01)*** ***A01P 3/00 (2006.01)***

Applicant
UPL LTD

1. This opinion contains indications relating to the following items:

- [X] Box No. I Basis of the opinion
- [ ] Box No. II Priority
- [ ] Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- [ ] Box No. IV Lack of unity of invention
- [X] Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step and industrial applicability; citations and explanations supporting such statement
- [ ] Box No. VI Certain documents cited
- [ ] Box No. VII Certain defects in the international application
- [ ] Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1*bis*(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

Name and mailing address of the ISA

AUSTRALIAN PATENT OFFICE
PO BOX 200, WODEN ACT 2606,
AUSTRALIA
Email address: pct@ipaustralia.gov.au

Date of completion of this opinion
12 January 2018

Authorised Officer

Cassandra Mitchell
AUSTRALIAN PATENT OFFICE
(ISO 9001 Quality Certified Service)
Telephone No. +61262832065

Form PCT/ISA/237 (Cover sheet) (July 2011)

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/IB2017/056710

Box No. I Basis of this opinion

1. With regard to the **language,** this opinion has been established on the basis of:

   [X] The international application in the language in which it was filed

   [ ] A translation of the international application into, , which is the language of a translation furnished for the purposes of international search (under Rules 12.3(a) and 23.1(b)).

2. [ ] This opinion has been established taking into account **the rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43*bis*.1(a))

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of a sequence listing filed or furnished:

   a. (means)

      [ ] on paper

      [ ] in electronic form

   b. (time)

      [ ] in the international application as filed

      [ ] together with the international application in electronic form

      [ ] subsequently to this Authority for the purposes of search

4. [ ] In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

5. Additional comments:

Box No. V **Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Claims **11**	**YES**
	Claims **1-10, 12-17**	**NO**
Inventive step (IS)	Claims **NONE**	**YES**
	Claims **1-17**	**NO**
Industrial applicability (IA)	Claims **1-17**	**YES**
	Claims **NONE**	**NO**

2. CITATIONS AND EXPLANATIONS:

CITATIONS

D1: US 2009/0131462 A1 (GEWEHR M ET AL) 21 May 2009

D2: Rosenberger, David. "Apple Scab Models & Suggestions for Scab Control in 2015" 70th North Jersey Commercial Fruit Growers Meeting, Flemington, NJ, 4 March 2015

D3: US 2008/0113979 A1 (FOOR S R) 15 May 2008

D4: WO 2015/079334 A1 (UPL LIMITED) 04 June 2015

D5: Lalancette, Norman. "New Fungicide for Apple Disease Control", Plant & Pest Advisory, Rutgers Cooperative Extension, March 17 2016

D6: Brent K J et al. "Fungicide Resistance in Crop Pathogens: How can it be managed?" 2nd revised edition, Fungicide Resistance Action Committee, 2007, ISBN 90-72398-07-6

NOVELTY (N)

D1 discloses ternary/quaternary fungicidal compositions comprising prothiopyrad (succinate dehydrogenase inhibitor), metiram (dithiocarbamate) and at least one more fungicide from group B including prothioconazole (ergosterol biosynthesis inhibitor) and famoxadone or fenamidone (quinone outside inhibitor). The compositions can be formulated into various formulations like powders or suspensions and the ratio of the constituent fungicides is 100:1-1:100 ([0060]-[0090], Table 1). The compositions can include other fungicides like strobilurons in order to widen the fungicidal activity spectrum. The compositions have excellent activity against a broad spectrum of harmful fungi and can be used in crop protection as foliar fungicides ([0140]). Therefore claims 1-2, 4-9, 12-17 are not novel.

Slide 17 of D2 discloses that mancozeb (dithiocarbamate) should be added to two known commercial products Luna Sensation (suspension concentrate of fluopyram and trifloxystrobin) and Merivon (suspension concentrate of fluxapyroxad and pyraclostrobin) and be used to treat fungal disease in apple trees. Both fluxapyroxad and fluopyram are succinate dehydrogenase inhibitors, while trifloxystrobin and pyraclostrobin are quinone outside inhibitors. Therefore claims 1-6, 8, 10, 12-17 are not novel.

D4 discloses a fungicidal combination comprising a multi-site contact fungicide (mancozeb = dithiocarbamate), a first systemic fungicide (succinate dehydrogenase inhibitor) and a second systemic fungicide (quinone outside inhibitor or ergosterol biosynthesis inhibitor). The succinate dehydrogenase inhibitor is chosen from bixafen, fluxapyroxad, furametpyr, isopyrazam, penflufen, penthiopyrad and sedaxane, while the preferred quinone outside inhibitor is a strobiluron fungicide and the preferred ergosterol biosynthesis inhibitor is a conazole fungicide (pg 15, 18-20). The addition of a dithiocarbamate fungicide to the systemic fungicides greatly increased the activity of the systemic fungicides over the expected disease control and expected yield (pg 21). The compositions can formulated into powders or emulsions with agriculturally acceptable additives (pg 23). Therefore claims 1-8, 10, 12-17 are not novel.

Claims 1-10 and 12-17 are not novel and therefore do not comply with PCT Article 33(2).

Claim 11 is novel and therefore complies with PCT Article 33(2).

INVENTIVE STEP (IS)

Given the above novelty objection, claims 1-10 and 12-17 do not involve an inventive step.

Claim 11 does not involve an inventive step in light of D4. The disclosure of D4 is discussed above.

Claim 11 differs from D4 in that it specifies a combination of (A) mancozeb; and (B) benzovindiflupyr, isopyrazam or penthiopyrad; and (C) prothioconazole and/or azoxystrobin.

However, D4 mentions that the addition of a dithiocarbamate fungicide to systemic fungicides like those specified as components (B) and (C) of claim 11 greatly increases the activity of the systemic fungicides over the expected disease control and expected yield. This is the same as the advantage for the current claimed composition, as mentioned in paragraph 1 on page 46 of the current specification, wherein a dithiocarbamate fungicide is added to a combination of systemic fungicides including succinate dehydrogenase inhibitors with quinone outside inhibitors and/or ergosterol biosynthesis inhibitors. Therefore it would appear that the advantage is known in the art and hence the specific combination of claim 11 is merely an obvious choice which the skilled addressee would arrive at by a routine and non-inventive process.

Claims 1-17 do not involve an inventive step in light of D3 and common general knowledge in the art.

D3 discloses fungicidal mixtures of penthiopyrad (succinate dehydrogenase inhibitor), strobilurons (quinone outside inhibitors) and triazoles/imidazoles (ergosterol biosynthesis inhibitors) that are useful for controlling fungal diseases on fruits and vegetables. The mixture is used as a formulation with agriculturally suitable components and formulated as solutions, emulsions or powders ([0024]-[0040], [0121]-[0129]).

The claimed invention differs from D3 in that the fungicidal compositions contains a dithiocarbamate, in particular mancozeb.

However, it is commonly known in the art that fungicides like succinate dehydrogenase inhibitors, quinone outside inhibitors and ergosterol biosynthesis inhibitors have a medium to high risk of resistance development and hence protectant or broad spectrum fungicides like mancozeb should always be used in conjunction with these at risk materials so that resistance development is delayed and the fungicides remain usable. As such, it is considered that the person skilled in the art would as a matter of routine include a known broad spectrum dithiocarbamate fungicide like mancozeb in the fungicidal mixture of D3 in order to delay resistance development in crop pathogens and broaden the fungicidal activity spectrum.

Claims 1-17 do not involve an inventive step and therefore do not comply with PCT Article 33(3).

INDUSTRIAL APPLICABILITY (IA)

The invention defined in the claims is considered to meet the requirements of Industrial Applicability under Article 33(4) of the PCT because it can be made by, or used in, industry.