

AB Transesterification is done with powdered lipase (I) (size, 1-100 μ m) of especially *Alcaligenes* in the absence of water. The I is dispersed in the substrates by e.g. supersonication. Transesterification of palm oil with rapeseed oil with I of *Alcaligenes* sp. (lipase PL) was shown.

IPCI C12P0007-62 [ICM,6]; C12N0009-20 [ICS,6]; C12N0009-20 [ICI,6]; C12R0001-05 [ICI,6]

IPCR C12N0009-20 [I]; C12N0011-14 [I]; C12P0007-62 [I]; C12P0007-64 [I]; C12R0001-05 [N]

CC 16-5 (Fermentation and Bioindustrial Chemistry)

ST lipase transesterification water free; supersonication powd lipase transesterification water free

IT *Alcaligenes*
Candida rugosa
 (transesterification with powdered lipase in absence of water)

IT Montan wax
 Palm oil
 Rape oil
 Sunflower oil
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (transesterification with powdered lipase in absence of water)

IT Glycerides
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (C8-10, ODO, transesterification with powdered lipase in absence of water)

IT Transesterification
 (enzymic, transesterification with powdered lipase in absence of water)

IT 9001-62-1, Lipase
 RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); BIOL (Biological study)
 (powdered; transesterification with powdered lipase in absence of water)

IT 56-81-5, Glycerine, reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (transesterification with powdered lipase in absence of water)

OS.CITING REF COUNT: 17 THERE ARE 17 CAPLUS RECORDS THAT CITE THIS RECORD (23 CITINGS)

L107 ANSWER 20 OF 46 HCAPLUS COPYRIGHT 2016 ACS on STN

ACCESSION NUMBER: 1995:576771 HCAPLUS Full-text

DOCUMENT NUMBER: 122:313072

ORIGINAL REFERENCE NO.: 122:56936h,56937a

TITLE: Transesterification with microbial lipase in the absence of solvent and water

INVENTOR(S): Negishi, Satoshi; Shirasawa, Seiichi; Suzuki, Junko; Murui, Takeo; Kokusho, Sumitaka; Tsunoda, Akira; Ooshima, Akio

PATENT ASSIGNEE(S): Nisshin Oil Mills Ltd, Japan; Meito Sangyo Kk

SOURCE: Jpn. Kokai Tokkyo Koho, 4 pp.
 CODEN: JKXXAF

DOCUMENT TYPE: Patent

LANGUAGE: Japanese

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
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JP 07079786 A 19950328 JP 1993-231630 19930917
 JP 2796925 B2 19980910

PRIORITY APPLN. INFO.: JP 1993-231630 19930917

AB Transesterification is done with position-specific lipase (I) of *Alcaligenes* at 81-130° in the absence of solvent and water. Transesterification of fatty acids of Montan wax with ODO triglycerides at 95° with I of *Alcaligenes* sp. (lipase QL) was shown.

IPCI C12P0007-62 [ICM,6]
 IPCR C12P0007-62 [I]

CC 16-5 (Fermentation and Bioindustrial Chemistry)

ST lipase transesterification solvent water free

IT *Alcaligenes*
 Carnauba wax
 (transesterification with microbial position-specific lipase in absence of solvent and water)

IT Montan wax
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (transesterification with microbial position-specific lipase in absence of solvent and water)

IT Glycerides
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (C8-10, ODO, transesterification with microbial position-specific lipase in absence of solvent and water)

IT Transesterification
 (enzymic, transesterification with microbial position-specific lipase in absence of solvent and water)

IT 9001-62-1, Lipase
 RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); BIOL (Biological study)
 (transesterification with microbial position-specific lipase in absence of solvent and water)

IT 56-81-5, Glycerine, reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (transesterification with microbial position-specific lipase in absence of solvent and water)

L107 ANSWER 21 OF 46 HCAPLUS COPYRIGHT 2016 ACS on STN

ACCESSION NUMBER: 1996:110854 HCAPLUS Full-text

DOCUMENT NUMBER: 124:149076

ORIGINAL REFERENCE NO.: 124:27681a,27684a

TITLE: Synthesis of visco-ductile compounds present in Japan wax with enzymes I. Preparation of visco-ductile compound 1 by inter-esterification with lipases

AUTHOR(S): Tachibana, Sanro; Onogi, Toshinari; Itoh, Kazutaka; Oki, Tae

CORPORATE SOURCE: College of Agriculture, Ehime University, Matsuyama, 790, Japan

SOURCE: Mokuizai Gakkaishi (1995), 41(11), 1022-8
 CODEN: MKZGA7; ISSN: 0021-4795

PUBLISHER: Nippon Mokuizai Gakkai

DOCUMENT TYPE: Journal

LANGUAGE: Japanese

AB The large visco-ductile compound, [(α ", β '-dipalmitoyl)-glyceryl]- α -(ω -carbononadecanoyl)- α ', β -dipalmitoyl-glycerol (I), can be prepared from tripalmitin and carboxylic acid, α -(ω -carboxynonadecanoyl)- α ', β -dipalmitoyl-glycerol, by inter-esterification with five com. lipases in one step. The yield of I changed from 2.1% to 20.1% depending on the kinds of lipases used. The effects of the solvents, reaction temperature, and the amts. of lipases on the inter-esterification reaction and the yield of I were also discussed.

CC 43-9 (Cellulose, Lignin, Paper, and Other Wood Products)
 ST glycerol deriv prepn interesterification lipase catalyst
 IT Transesterification
 (synthesis of visco-ductile glycerol derivative compds. by
 inter-esterification with lipases)
 IT Transesterification catalysts
 (synthesis of visco-ductile glycerol derivative compds. by
 interesterification with lipases)
 IT 9001-62-1, Lipase
 RL: CAT (Catalyst use); USES (Uses)
 (synthesis of visco-ductile glycerol derivative compds. by
 inter-esterification with lipases)
 IT 555-44-2, Tripalmitin 130447-62-0
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (synthesis of visco-ductile glycerol derivative compds. by
 inter-esterification with lipases)
 IT 130447-67-5P
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (synthesis of visco-ductile glycerol derivative compds. by
 inter-esterification with lipases)
 OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD
 (1 CITINGS)

L107 ANSWER 22 OF 46 HCAPLUS COPYRIGHT 2016 ACS on STN

ACCESSION NUMBER: 1993:498401 HCAPLUS Full-text

DOCUMENT NUMBER: 119:98401

ORIGINAL REFERENCE NO.: 119:17717a,17720a

TITLE: Chemical conversion of extractives for the production
 of chemicals and fuels. VIII. Improvement of the
 visco-ductile property in urushi wax

AUTHOR(S): Tachibana, Sanro; Ohkubo, Katsumi; Sumimoto, Masashi

CORPORATE SOURCE: Fac. Agric., Kyushu University, Fukuoka, 812, Japan

SOURCE: Mokuzai Gakkaishi (1992), 38(7), 700-6

CODEN: MKZGA7; ISSN: 0021-4795

DOCUMENT TYPE: Journal

LANGUAGE: Japanese

AB Visco-ductility of urushi (*Rhus verniciflua* Stokes) wax which had been
 inferior to that of haze (*Rhus succedanea* L.) wax was increased greatly to a
 level almost equal to that of haze wax by the addition of a minor amount of
 visco-ductile compds. Anal. of urushi wax, to which 1 % visco-ductile compds.
 had been added, showed that the m.p. and iodine value were within the limits
 of the export standard for Japan wax. Basic information on the formation of
 visco-ductile compds. in urushi wax through the action of lipase was obtained.
 About 14 to 20 mol % of free saturated monocarboxylic acids were exchanged and
 incorporated into triglycerides by the method of interesterification with a
 com. lipase. About 11 to 19 mol % of unsatd. monocarboxylic acids, and about 5
 mol % of docosanedioic acid also were exchanged by the interesterification.

CC 45-3 (Industrial Organic Chemicals, Leather, Fats, and Waxes)

ST urushi wax viscoductility; Japan wax viscoductility; lipase
 interesterification urushi wax

IT Transesterification
 (in urushi wax, formation of viscoductility improving compds.
 by)

IT Japan wax

RL: USES (Uses)

(*Rhus verniciflua*, viscoductility of, additives for improvement of)

IT 9001-62-1, Lipase

RL: USES (Uses)

(interesterification with, formation of viscoductility improving

compds. in urushi wax by)
 IT 130447-65-3 130447-67-5
 RL: USES (Uses)
 (viscoductility improving additive, for urushi wax)

L107 ANSWER 23 OF 46 HCAPLUS COPYRIGHT 2016 ACS on STN

ACCESSION NUMBER: 1989:20529 HCAPLUS Full-text
 DOCUMENT NUMBER: 110:20529
 ORIGINAL REFERENCE NO.: 110:3441a,3444a
 TITLE: Purification of a thermostable, nonspecific lipase
 from Candida and its use in transesterification
 INVENTOR(S): Ishii, Michiyo
 PATENT ASSIGNEE(S): Novo Industri A/S, Den.
 SOURCE: PCT Int. Appl., 80 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 2
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 8802775	A1	19880421	WO 1987-DK127	19871016
W: DK, JP, US				
RW: AT, BE, CH, DE, FR, GB, IT, LU, NL, SE				
EP 287634	A1	19881026	EP 1987-907098	19871016
EP 287634	B1	19950111		
R: AT, BE, CH, DE, FR, GB, IT, LI, LU, NL, SE				
JP 01501120	T	19890420	JP 1987-506545	19871016
JP 2628667	B2	19970709		
CA 1339844	C	19980428	CA 1987-549667	19871019
DK 8803250	A	19880615	DK 1988-3250	19880615
DK 159882	B	19901224		
DK 159882	C	19910513		
US 5273898	A	19931228	US 1992-962621	19921016
PRIORITY APPLN. INFO.:			DK 1986-4966	A 19861017
			DK 1987-5072	A 19870928
			WO 1987-DK127	W 19871016
			US 1988-206344	B1 19880721

ASSIGNMENT HISTORY FOR US PATENT AVAILABLE IN LSUS DISPLAY FORMAT

AB A novel thermostable, nonspecific lipase is purified from Candida species and characterized. It is used for ester hydrolysis or synthesis and for transesterification, e.g. for randomization of fat in the margarine industry. In a pilot plant production of lipase, C. antarctica was cultured for 5 days at 26° in a medium containing yeast extract, Pharmamedia, sucrose, soy bean oil, Pluronic 60L, and salts. The yield was 82 lipase units/mL. The enzyme was purified by filtration, EtOH precipitation, and hydrophobic interaction purification to provide lipase with specific activity of 143,000 units/g. The pH optimum was .apprx.7 and it was stable up to 84°. This enzyme was further purified to provide 2 lipases with different substrate specificities. The lipase mixture was immobilized on Lewatit E 2001/85 nonionic resin and used to catalyze transesterification of palm oil mid fraction and soy bean oil in a continuous process. No deactivation was seen in .apprx.1000 h of operation at 60°.

IPCI C12N0009-20 [ICM,4]; C12N0015-00 [ICS,4]; C12R0001-72 [ICI,4]
 IPCR C12P0007-64 [I]; C12N0009-20 [I]; C12N0011-02 [I]; C12N0015-09 [I];
 C12R0001-72 [N]

CC 7-2 (Enzymes)

Section cross-reference(s): 17

ST lipase purifn thermostable nonspecific Candida

IT Gene and Genetic element, microbial
 RL: BIOL (Biological study)
 (for lipase of Candida, expression in Aspergillus of)

IT Transesterification
 (lipase from Candida for, thermostable and nonspecific)

IT Aspergillus
 (lipase gene of Candida expression in)

IT Plasmid and Episome
 (lipase gene of Candida on)

IT Candida
 Candida antarctica
 Candida auriculariae
 Candida foliarum
 Candida humicola
 Candida tsukubaensis
 (lipase purification from, thermostable and nonspecific)

IT Margarine
 (manufacture of, randomization of fats in, thermostable and nonspecific
 lipase from Candida for)

IT Fats, reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (randomization of, thermostable and nonspecific lipase from
 Candida for)

IT Esters, preparation
 RL: PREP (Preparation)
 (synthesis or hydrolysis, thermostable and nonspecific lipase
 from Candida for)

IT Glycerides, reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (transesterification of, thermally stable and nonspecific
 lipase from Candida in)

IT Fatty acids, reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (polyunsatd., ester exchange with glycerides and, thermostable and
 nonspecific lipase from Candida in)

IT 57-10-3, Palmitic acid, biological studies 57-11-4, Stearic acid,
 biological studies 60-33-3, Linoleic acid, biological studies
 143-07-7, Lauric acid, biological studies
 RL: BIOL (Biological study)
 (ester exchange with tricaprylin and, thermostable and nonspecific
 lipase from Candida for)

IT 538-23-8, Tricaprylin
 RL: BIOL (Biological study)
 (ester exchange with, thermostable and nonspecific lipase
 from Candida for)

IT 112-80-1, Oleic acid, biological studies 544-63-8, Myristic acid,
 biological studies
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (esterification of, thermostable and nonspecific lipase from
 Candida for)

IT 67-63-0, 2-Propanol, biological studies 71-23-8, 1-Propanol, biological
 studies 143-28-2, Oleyl alcohol
 RL: BIOL (Biological study)
 (myristic acid esterification with, thermostable and nonspecific
 lipase from Candida for)

IT 112-72-1, Myristic alcohol
 RL: BIOL (Biological study)
 (myristyl myristate preparation, from, with thermostable and nonspecific
 lipase from Candida)

IT 110-27-0P 111-59-1P 112-11-8P 3687-45-4P, Oleyl oleate
 14303-70-9P 22393-93-7P
 RL: PREP (Preparation)
 (preparation of, with thermostable and nonspecific lipase from
 Candida)
 IT 9001-62-1P, Lipase
 RL: PREP (Preparation)
 (thermostable and nonspecific, purification from Candida of)
 OS.CITING REF COUNT: 41 THERE ARE 41 CAPLUS RECORDS THAT CITE THIS
 RECORD (45 CITINGS)
 REFERENCE COUNT: 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS
 RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L107 ANSWER 24 OF 46 HCAPLUS COPYRIGHT 2016 ACS on STN
 ACCESSION NUMBER: 1989:93583 HCAPLUS Full-text
 DOCUMENT NUMBER: 110:93583
 ORIGINAL REFERENCE NO.: 110:15457a,15460a
 TITLE: Enzymic manufacture of ester waxes in the presence
 of water
 INVENTOR(S): Taniguchi, Morimasa; Sumiyoshi, Yuko
 PATENT ASSIGNEE(S): Kao Corp., Japan
 SOURCE: Jpn. Kokai Tokkyo Koho, 5 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 63251089	A	19881018	JP 1987-86113	19870408
PRIORITY APPLN. INFO.:			JP 1987-86113	19870408

AB Ester waxes are manufactured by the lipase-catalyzed alcoholysis of oils and
 C6-24 alcs. in the presence of ≥5% H2O based on the oils. Thus, a mixture of
 olive oil 26.55, oleyl alc. 24.48, lipase of Candida cylindracea 0.042, and
 H2O 2.55 g (10% of the olive oil) was shaken at 40° for 3 h to produce olive
 oil fatty acid oleyl ester in 76% yield vs. 7% for a mixture containing 0.27 g
 H2O (1% of the olive oil).

IPCI C12P0007-62 [ICM,4]

IPCR C12P0007-62 [I]

CC 16-5 (Fermentation and Bioindustrial Chemistry)

ST ester wax manuf; oil alcoholysis water lipase

IT Oils, glyceridic

Olive oil

RL: BIOL (Biological study)

(alcoholysis with C6-24 alcs., lipase-catalyzed, in
 ester wax manufacture)

IT Safflower oil

RL: BIOL (Biological study)

(alcoholysis with C6-24 alcs., lipase-catalyzed, in
 in ester wax manufacture)

IT Candida rugosa

Pseudomonas cepacia

(lipase of, alcoholysis of oils catalyzed by, in
 ester wax manufacture)

IT Transesterification

(of glyceridic oils with C 6-24 alcs., for manufacture of ester
 waxes)

IT Alcoholysis

(of oils, lipase-catalyzed, in ester

wax manufacture)

IT Alcohols, reactions
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (C6-24, transesterification of glycerides by, lipase
 -catalyzed, in ester wax manufacture)

IT Fatty acids, esters
 RL: PROC (Process)
 (esters, with C6-24 alcs., manufacture of, by lipase-
 catalyzed oil alcoholysis)

IT 112-53-8, Lauryl alcohol 143-28-2, Oleyl alcohol
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (alcoholysis of oils by, lipase-catalyzed, in
 ester wax manufacture)

IT 9001-62-1, Lipase
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (alcoholysis of oils catalyzed by, in ester
 wax manufacture)

OS.CITING REF COUNT: 1 THERE ARE 1 CAPLUS RECORDS THAT CITE THIS RECORD
 (1 CITINGS)

L107 ANSWER 25 OF 46 WPIX COPYRIGHT 2016 THOMSON REUTERS on STN
 ACCESSION NUMBER: 2015-42514P [201552] WPIX Full-text
 TITLE: Performing esterification of fatty acid used in biofuels,
 food, cosmetics, and pharmaceutical composition, involves
 reacting alcohol and fatty acids in reaction medium in
 presence of immobilized lipase to obtain esters of
 fatty acid
 DERWENT CLASS: B04; D13; D16; D21; H06
 INVENTOR: BASHEER S; USAMA M; MOHSEN U; SOBHI B
 PATENT ASSIGNEE: (TRAN-N) TRANS BIO-DIESEL LTD
 COUNTRY COUNT: 1

PATENT INFO ABBR.:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
BR 102013033923	A2	20150526	(201552)*	PT	67[5]	
BR 102013033923	B1	20160202	(201632)	EN		

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
BR 102013033923	A2	BR 2013-102013033923	20131230
BR 102013033923	B1	BR 2013-102013033923	20131230

PRIORITY APPLN. INFO: BR 2013-102013033923 20131230

AB BR 102013033923 A2 UPAB: 20150813
 NOVELTY - Performing esterification of fatty acid involves reacting alcohol
 and fatty acids in a reaction medium in presence of immobilized lipase to
 obtain esters of fatty acid. The lipase enzyme is immobilized on hydrophobic
 porous support.
 USE - Method for performing esterification of fatty acid (claimed) used in
 biofuel, food, cosmetic, and pharmaceutical composition.

L107 ANSWER 26 OF 46 WPIX COPYRIGHT 2016 THOMSON REUTERS on STN
 ACCESSION NUMBER: 2013-K06066 [201343] WPIX Full-text
 TITLE: Making esters of lipoic acid with triglyceride compound involves reacting in a reaction mixture lipoic acid or its ester with triglyceride in presence of ~~lipase~~ ~~catalyst~~ under trans-esterification condition; and recovering compound
 DERWENT CLASS: D21; E13
 INVENTOR: COMPTON D L; EVANS K O; LASZLO J A
 PATENT ASSIGNEE: (USDA-C) US SEC OF AGRIC
 COUNTRY COUNT: 1

PATENT INFO ABBR.:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
US 8455666	B1	20130604	(201343)*	EN	15	[6]

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
US 8455666	B1	US 2011-13224565	20110902

PRIORITY APPLN. INFO: US 2011-13224565 20110902

AB US 8455666 B1 UPAB: 20130708

NOVELTY - Making esters of lipoic acid with triglyceride compound involves reacting in a reaction mixture lipoic acid or its ester with a triglyceride in the presence of a ~~lipase~~ ~~catalyst~~ under conditions that permit transesterification of the lipoic acid or its ester and the triglyceride; and recovering the compound from reaction mixture.

DETAILED DESCRIPTION - Making esters of lipoic acid with triglyceride compound of formula R1-C-C(R2)-C(R3) (I) involves reacting in a reaction mixture lipoic acid or its ester with a triglyceride in the presence of a ~~lipase~~ ~~catalyst~~ under conditions that permit transesterification of the lipoic acid or its ester and the triglyceride; and recovering the compound from reaction mixture. R1-R3=lipoate moiety of formula (ia), 4-24C fatty acid moieties or OH. In the compound (I), at least one but not greater than 2 R1-R3 are lipoate moiety of formula (ia), and the other of the R1-R3 are 4-24C fatty acid moieties or OH. Provided that at least one of the R1-R3 is a fatty acid moiety.

USE - For making esters of lipoic acid with triglyceride derivative, which is useful for producing dihydrolipoyl derivative (claimed) as carrier for lipoic acid, for topical and cosmetic applications as lotion, cream, gel, stick or aerosol; and as skin care nutrient.

ADVANTAGE - The method produces esters of lipoic acid with triglyceride compound in high yield. The compound provides enhanced skin penetration of the lipoic acid, and therefore provides improved performance in the activity of the lipoyl moiety.

L107 ANSWER 27 OF 46 WPIX COPYRIGHT 2016 THOMSON REUTERS on STN
 ACCESSION NUMBER: 2013-V79630 [201418] WPIX Full-text
 TITLE: Preparing starch nanocrystal comprises taking waxy corn starch and diluted sulfuric acid, performing hydrolysis process to prepare starch nanocrystal, and performing lipase catalytic ester exchange reaction with methyl oleate
 DERWENT CLASS: D16

INVENTOR: CHEN H; HU X; JIN Z; TIAN Y; WEI B; XIE Z; XU X; ZHAO J
 PATENT ASSIGNEE: (UYJN-C) UNIV JIANGNAN
 COUNTRY COUNT: 1

PATENT INFO ABBR.:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
CN 103305568	A	20130918	(201418)*	ZH	6[0]	
CN 103305568	B	20150128	(201521)	ZH		

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
CN 103305568 A		CN 2013-10264825	20130628
CN 103305568 B		CN 2013-10264825	20130628

PRIORITY APPLN. INFO: CN 2013-10264825 20130628

AB CN 103305568 A UPAB: 20140314

NOVELTY - Preparing starch nanocrystal comprises taking waxy corn starch and diluted sulfuric acid as raw materials, performing a hydrolysis process to prepare the starch nanocrystal, and performing a lipase catalytic ester exchange reaction with methyl oleate as a modifying agent to change the surface properties of the starch nanocrystal and to prepare the starch nanocrystal oleic acid ester.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is included for a starch nanocrystal.

USE - The method is useful for preparing starch nanocrystal (claimed).

ADVANTAGE - The nanocrystal has excellent emulsifying ability, and excellent oil and water adsorption capacity.

L107 ANSWER 28 OF 46 WPIX COPYRIGHT 2016 THOMSON REUTERS on STN

ACCESSION NUMBER: 2012-R29463 [201315] WPIX Full-text

TITLE: Preparing lipase catalyzed vitamin C isomers mixed fatty acid ester, by transesterifying vitamin C isomers, fat/oil, Lipozyme and organic solvent, distilling filtrate, adding ethyl acetate and separating and purifying crude product

DERWENT CLASS: D16; E13

INVENTOR: PENG H; YU B; YU S; ZHENG D; ZHOU Q; ZHU X

PATENT ASSIGNEE: (JIAN-N) JIANGXI DEXING PARCHN SODIUM ISOVITAMIN;
 (SHAN-N) SHANGRAO NORMAL COLLEGE

COUNTRY COUNT: 1

PATENT INFO ABBR.:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
CN 102660594	A	20120912	(201315)*	ZH	6[0]	
CN 102660594	B	20131225	(201415)	ZH		

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
CN 102660594 A		CN 2012-10184290	20120606
CN 102660594 B		CN 2012-10184290	20120606

PRIORITY APPLN. INFO: CN 2012-10184290 20120606

AB CN 102660594 A UPAB: 20130301

NOVELTY - Preparing lipase catalyzed vitamin C (Vc) isomers mixed fatty acid ester, by (a) subjecting mixture comprising Vc isomers, animal or vegetable derived fat/oil, Lipozyme (RTM: Lipase) 435 and organic solvent to transesterification, (b) filtering solution to remove lipase and unreacted Vc isomer, distilling filtrate, adding ethyl acetate and distilled water for separating ethyl acetate layer, removing unreacted Vc residue, washing and drying the ethyl acetate layer, and removing the ethyl acetate layer, and (c) separating and purifying crude product by column chromatography.

DETAILED DESCRIPTION - Method for preparing lipase catalyzed vitamin C (Vc) isomers mixed fatty acid ester, involves (a) adding Vc isomers, animal derived fat/oil or vegetable derived fat/oil, Lipozyme (RTM: Lipase) 435 and organic solvent to conical flask having plug, and allowing transesterification reaction to occur in shaking water bath at constant temperature, (b) filtering solution after completion of the reaction to remove the lipase and unreacted Vc isomer, subjecting filtrate to distillation for removing the organic solvent, adding and mixing ethyl acetate and distilled water to distilled filtrate for separation of ethyl acetate layer, removing unreacted Vc residues, washing the ethyl acetate layer using saturated distilled water until the ethyl acetate layer gets separated from aqueous layer, drying the ethyl acetate layer using anhydrous sodium sulfate, and performing reduced pressure distillation to remove the ethyl acetate to obtain crude product, and (c) separating and purifying the crude product by column chromatography, eluting unreacted fat/oil or partial transesterified fat/oil using dichloromethane, flowing the solution out of the silica gel column, performing distillation at normal pressure to remove the dichloromethane, recovering the fat/oil, adsorbing product at top of the silica gel column, extracting the product using ethyl acetate, performing reduced pressure distillation to remove the ethyl acetate, and performing vacuum drying to obtain wax solid.

USE - The method is useful for preparing lipase catalyzed Vc isomers mixed fatty acid ester.

ADVANTAGE - The method enables conversion of the Vc isomer up to 48%, with subsequent recovery of the unreacted animal or vegetable derived fat/oil. The preparation method is simple, convenient to operate and environmentally-friendly.

L107 ANSWER 29 OF 46 WPIX COPYRIGHT 2016 THOMSON REUTERS on STN
 ACCESSION NUMBER: 2009-S10425 [200981] WPIX Full-text
 TITLE: Frozen sauce for foodstuff comprises lactic acid
 fermented egg white processed liquid consists of egg
 white protein and edible oil
 DERWENT CLASS: D13
 INVENTOR: FUJIWARA Y
 PATENT ASSIGNEE: (QPPP-C) QP CORP
 COUNTRY COUNT: 1

PATENT INFO ABBR.:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
JP 2009284852	A	20091210	(200981)*	JA	12	[0]
JP 4791510	B2	20111012	(201167)	JA	13	

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
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JP 2009284852 A	JP 2008-142571 20080530
JP 4791510 B2	JP 2008-142571 20080530

FILING DETAILS:

PATENT NO	KIND	PATENT NO
JP 4791510 B2	Previous Publ	JP 2009284852 A

PRIORITY APPLN. INFO: JP 2008-142571 20080530

AB JP 2009284852 A UPAB: 20091216

NOVELTY - Frozen sauce contains lactic acid fermented egg white processed liquid consists of 2-8% egg white protein and 5-20% edible oil. The pH of lactic acid fermented egg white processed liquid, with viscosity of 800 mPa.s at 10 degrees C, is 3.8-4.5 and the average particle diameter is less than or equal to 40 mu m.

USE - Frozen sauce for foodstuff.

ADVANTAGE - The frozen sauce is savory.

L107 ANSWER 30 OF 46 WPIX COPYRIGHT 2016 THOMSON REUTERS on STN
 ACCESSION NUMBER: 2009-S09348 [201001] WPIX Full-text
 TITLE: Retort sauce comprises lactic acid fermented egg white liquid which consists of oil-in-water emulsion of edible oil and fat and egg-white protein
 DERWENT CLASS: D13
 INVENTOR: KURIHARA Y; NISHIKAWA Y; OKUYAMA Y; YOSHIMI K
 PATENT ASSIGNEE: (QPPP-C) QP CORP
 COUNTRY COUNT: 1

PATENT INFO ABBR.:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
JP 2009284791	A	20091210	(201001)*	JA	14[0]	
JP 4791508	B2	20111012	(201167)	JA	14	

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
JP 2009284791	A	JP 2008-139149	20080528
JP 4791508	B2	JP 2008-139149	20080528

FILING DETAILS:

PATENT NO	KIND	PATENT NO
JP 4791508 B2	Previous Publ	JP 2009284791 A

PRIORITY APPLN. INFO: JP 2008-139149 20080528

AB JP 2009284791 A UPAB: 20100101

NOVELTY - Retort sauce comprises lactic acid fermented egg white liquid which consists of oil-in-water emulsion of 5-20 % of edible oil and fat and 2-8% of egg-white protein, and has viscosity of greater than or equal to 800 mPa.s at 10 degrees C, pH of 3.8-4.5 and average particle diameter of less than or equal to 40 mu m.

USE - A retort sauce.

ADVANTAGE - Has excellent appearance and ingredients does not separate even when retort treated.

L107 ANSWER 31 OF 46 WPIX COPYRIGHT 2016 THOMSON REUTERS on STN
 ACCESSION NUMBER: 2009-R31460 [200976] WPIX Full-text
 TITLE: Processed liquid egg white for processed food and fats
 and oils retention material comprises egg white protein,
 edible oil and fat, and oil-in-water emulsion with
 predetermined pH, viscosity and average particle diameter
 D13
 DERWENT CLASS:
 INVENTOR: NISHIKAWA Y; OKUYAMA Y; YOSHIMI K
 PATENT ASSIGNEE: (QPPP-C) QP CORP
 COUNTRY COUNT: 1

PATENT INFO ABBR.:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
JP 2009268383	A	20091119	(200976)*	JA	12	[0]
JP 4791506	B2	20111012	(201167)	JA	13	

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
JP 2009268383	A	JP 2008-120134	20080502
JP 4791506	B2	JP 2008-120134	20080502

FILING DETAILS:

PATENT NO	KIND	PATENT NO
JP 4791506	B2	Previous Publ JP 2009268383 A

PRIORITY APPLN. INFO: JP 2008-120134 20080502

AB JP 2009268383 A UPAB: 20091126

NOVELTY - A processed liquid egg white comprises egg white protein (2-8%), edible oil and fat (5-20%), and oil-in-water emulsion with pH of 3.8-4.5, viscosity of greater than or equal to 800 mPa.s (10 degrees C of substance temperatures) and average particle diameter of less than or equal to 40 μ m. The lactic acid fermentation of processed liquid egg white is carried out. DETAILED DESCRIPTION - INDEPENDENT CLAIMS are included for: (1) processed dried albumen; (2) method of manufacturing processed liquid egg white; (3) method of manufacturing processed dried albumen; (4) processed food; and (5) fats and-oils retention material.

USE - A processed liquid egg white for processed dried albumen used for processed food and fats and oils retention material (claimed).

ADVANTAGE - The processed liquid egg white has holding capability of fats and oils, and provides processed food which is excellent in external appearance.

L107 ANSWER 32 OF 46 WPIX COPYRIGHT 2016 THOMSON REUTERS on STN
 ACCESSION NUMBER: 2008-M01288 [200870] WPIX Full-text
 DOC. NO. CPI: C2008-363596 [200870]
 TITLE: Interfacial enzyme immobilized on a solid support locked
 in its catalytically active confirmation useful in an
 enzymatic process for the preparation of structured ~~was~~
 esters

DERWENT CLASS: A97; D16; E17; H06
 INVENTOR: BASHEER S
 PATENT ASSIGNEE: (BASH-I) BASHEER S; (TRAN-N) TRANS BIODIESEL LTD;
 (TRAN-N) TRANSBIODIESEL LTD
 COUNTRY COUNT: 122

PATENT INFO ABBR.:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
WO 2008084470	A2	20080717	(200870)*	EN	25	[2]
WO 2008084470	A3	20081023	(200872)	EN		
AU 2007343058	A1	20090806	(200957)	EN		
CA 2675003	A1	20080717	(200974)	EN		
EP 2118277	A2	20091118	(200976)	EN		
KR 2009117725	A	20091112	(200976)	KO		
CN 101631857	A	20100120	(201009)	ZH		
MX 2009007367	A1	20091031	(201010)	ES		
US 20100035312	A1	20100211	(201012)	EN		
IN 2009MN01315	A	20100305	(201028)	EN		
JP 2010515450	T	20100513	(201032)	JA	26	
EP 2118277	B1	20110907	(201158)	EN		
MX 294508	B	20120110	(201223)	ES		
ES 2373171	T3	20120201	(201228)	ES		
CA 2675003	C	20130319	(201326)	EN		
CN 101631857	B	20130320	(201338)	ZH		
AU 2007343058	B2	20130613	(201339)	EN		
US 8551743	B2	20131008	(201372)	EN		
US 20140004581	A1	20140102	(201403)	EN		
JP 5443997	B2	20140319	(201422)	JA	14	
IL 199755	A	20121031	(201518)	EN		
KR 1556799	B1	20151013	(201571)	KO		

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 2008084470	A2	WO 2007-IL1630	20071231
AU 2007343058	A1	AU 2007-343058	20071231
AU 2007343058	B2	AU 2007-343058	20071231
CA 2675003	A1	CA 2007-2675003	20071231
CA 2675003	C	CA 2007-2675003	20071231
CN 101631857	A	CN 2007-80050097	20071231
CN 101631857	B	CN 2007-80050097	20071231
EP 2118277	A2	EP 2007-849656	20071231
EP 2118277	B1	EP 2007-849656	20071231
ES 2373171	T3	EP 2007-849656	20071231
IL 199755	A	IL 2007-199755	20071231
CA 2675003	A1 PCT Application	WO 2007-IL1630	20071231
EP 2118277	A2 PCT Application	WO 2007-IL1630	20071231
KR 2009117725	A PCT Application	WO 2007-IL1630	20071231
CN 101631857	A PCT Application	WO 2007-IL1630	20071231
MX 2009007367	A1 PCT Application	WO 2007-IL1630	20071231
US 20100035312	A1 PCT Application	WO 2007-IL1630	20071231
IN 2009MN01315	A PCT Application	WO 2007-IL1630	20071231
JP 2010515450	T PCT Application	WO 2007-IL1630	20071231
EP 2118277	B1 PCT Application	WO 2007-IL1630	20071231
MX 294508	B PCT Application	WO 2007-IL1630	20071231
CA 2675003	C PCT Application	WO 2007-IL1630	20071231

CN 101631857 B PCT Application	WO 2007-IL1630 20071231
AU 2007343058 B2 PCT Application	WO 2007-IL1630 20071231
US 8551743 B2 PCT Application	WO 2007-IL1630 20071231
US 20140004581 A1 Cont of	WO 2007-IL1630 20071231
JP 5443997 B2 PCT Application	WO 2007-IL1630 20071231
CA 2675003 A1 PCT Nat. Entry	CA 2007-2675003 20090708
JP 2010515450 T	JP 2009-545294 20071231
JP 5443997 B2	JP 2009-545294 20071231
KR 2009117725 A	KR 2009-716521 20071231
MX 2009007367 A1	MX 2009-7367 20090707
MX 294508 B	MX 2009-7367 20090707
IN 2009MN01315 A	IN 2009-MN1315 20090713
US 20100035312 A1	US 2009-522389 20090924
US 8551743 B2	US 2009-522389 20090924
US 20140004581 A1 Cont of	US 2009-522389 20090924
US 20140004581 A1	US 2013-14927 20130830
KR 1556799 B1 PCT Application	WO 2007-IL1630 20071231
KR 1556799 B1	KR 2009-716521 20071231
KR 1556799 B1 PCT Nat. Entry	KR 2009-716521 20090807

FILING DETAILS:

PATENT NO	KIND	PATENT NO
ES 2373171 T3	Based on	EP 2118277 A
JP 5443997 B2	Previous Publ	JP 2010515450 T
US 20140004581 A1	Cont of	US 8551743 B
AU 2007343058 A1	Based on	WO 2008084470 A
CA 2675003 A1	Based on	WO 2008084470 A
EP 2118277 A2	Based on	WO 2008084470 A
KR 2009117725 A	Based on	WO 2008084470 A
CN 101631857 A	Based on	WO 2008084470 A
MX 2009007367 A1	Based on	WO 2008084470 A
JP 2010515450 T	Based on	WO 2008084470 A
EP 2118277 B1	Based on	WO 2008084470 A
MX 294508 B	Based on	WO 2008084470 A
CA 2675003 C	Based on	WO 2008084470 A
CN 101631857 B	Based on	WO 2008084470 A
AU 2007343058 B2	Based on	WO 2008084470 A
US 8551743 B2	Based on	WO 2008084470 A
JP 5443997 B2	Based on	WO 2008084470 A
IL 199755 A	Based on	WO 2008084470 A
KR 1556799 B1	Previous Publ	KR 2009117725 A
KR 1556799 B1	Based on	WO 2008084470 A

PRIORITY APPLN. INFO: IL 2007-180598 20070108

AB WO 2008084470 A2 UPAB: 20090907

NOVELTY - An interfacial enzyme immobilized on a solid support. The interfacial enzyme is locked in its catalytically active confirmation.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are included for the following:

(1) preparation (M1) of the interfacial enzyme immobilized on an insoluble support involving: providing a bi-phase system comprised of an aqueous buffer solution and at least one first organic solvent; mixing the interfacial enzyme with the bi-phase system provided in the first step; adding the support to the mixture of the second step and mixing; isolating from the mixture obtained in the third step the interfacial enzyme immobilized on the support;

(2) an enzymatic process (M2) for the preparation of structured ~~wax~~ ~~esters~~ involving: reacting a triglyceride source with an alcohol in the presence of the immobilized ~~lipase~~ (where the ~~wax esters~~ contain a surface-active

component inherent to the raw starting material, thus the ~~wax esters~~ possess improved water dispersibility); and (3) preparation (M3) of short-chain alkyl esters of fatty acids (preferably fatty acid methyl esters (biodiesel)) involving: stepwise adding methanol to a plant, animal, algal or fish oil or a mixture of at least two of these oils that contain the ~~lipase~~ as enzyme and allowing the reaction to proceed under suitable conditions, until the oil triglycerides are converted to fatty acid methyl esters.

USE - In an enzymatic process for the preparation of structured ~~wax esters~~; for the preparation of short-chain alkyl esters of fatty acids (e.g. fatty acid methyl esters (biodiesel)) (all claimed); in industrial and investigational uses.

ADVANTAGE - The interfacial enzyme is locked in its catalytically active confirmation, and thus exhibits improved activity and stability; provides improved affinity of the support to the interfacial area.

L107 ANSWER 33 OF 46 WPIX COPYRIGHT 2016 THOMSON REUTERS on STN
 ACCESSION NUMBER: 2008-C75819 [200820] WPIX Full-text
 DOC. NO. CPI: C2008-084688 [200820]
 TITLE: New glyceride ester derivatives, useful in herbicidal composition for controlling weeds
 DERWENT CLASS: A97; C02; C03
 INVENTOR: HAY P; KRAVETS E; SUTTON G
 PATENT ASSIGNEE: (NUFA-N) NUFARM AUSTRALIA LTD
 COUNTRY COUNT: 119

PATENT INFO ABBR.:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
WO 2007112505	A1	20071011	(200820)*	EN	67[3]	
EP 2001830	A1	20081217	(200902)	EN		
AU 2007233581	A1	20081030	(200929)	EN		
CA 2643597	A1	20071011	(200939)	EN		
CN 101448776	A	20090603	(200940)	ZH		
US 20090247407	A1	20091001	(200964)	EN		
MX 2008012859	A1	20090331	(200966)	ES		
BR 2007010523	A2	20110816	(201204)	PT		
ID 500367	A	20100211	(201566)	ID		

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 2007112505	A1	WO 2007-AU442	20070405
US 20090247407	A1 Provisional	US 2006-810633P	20060605
AU 2007233581	A1	AU 2007-233581	20070405
BR 2007010523	A2	BR 2007-10523	20070405
CA 2643597	A1	CA 2007-2643597	20070405
CN 101448776	A	CN 2007-80018300	20070405
EP 2001830	A1	EP 2007-718689	20070405
EP 2001830	A1 PCT Application	WO 2007-AU442	20070405
CA 2643597	A1 PCT Application	WO 2007-AU442	20070405
CN 101448776	A PCT Application	WO 2007-AU442	20070405
US 20090247407	A1 PCT Application	WO 2007-AU442	20070405
MX 2008012859	A1 PCT Application	WO 2007-AU442	20070405
BR 2007010523	A2 PCT Application	WO 2007-AU442	20070405
CA 2643597	A1 PCT Nat. Entry	CA 2007-2643597	20081003
MX 2008012859	A1	MX 2008-12859	20081006

US 20090247407 A1
ID 500367 A

US 2008-295928 20081212
ID 2008-W3283 20070405

FILING DETAILS:

PATENT NO	KIND	PATENT NO
EP 2001830 A1	Based on	WO 2007112505 A
AU 2007233581 A1	Based on	WO 2007112505 A
CA 2643597 A1	Based on	WO 2007112505 A
CN 101448776 A	Based on	WO 2007112505 A
MX 2008012859 A1	Based on	WO 2007112505 A
BR 2007010523 A2	Based on	WO 2007112505 A

PRIORITY APPLN. INFO: US 2006-810633P 20060605
AU 2006-901790 20060405

AB WO 2007112505 A1 UPAB: 20090509

NOVELTY - Glyceride ester derivatives of are new.

DETAILED DESCRIPTION - Glyceride ester derivatives of formulae $R_{10}(CH_2)_q-CH_2-C(R)((CH_2)_tOR_2)-CH_2-(CH_2)_vOR_3$ (I) or $R'_{10}-CH_2-CH(OR'_2)-CH_2-OR'_3$ (III), are new. $R=H$ or $(CH_2)_mOR_4$;

m, q, t and $v=0$ or 1 ;

$R_1-R_4=H$, lower alkyl (preferably 1-4C alkyl), lower acyl (preferably 2-4C aryl) or group of formula (II); $A=N$ or CH ;

$X=Cl$, amino, methyl or methoxy; $X_1=H$, Cl or methyl;

$X_2=H$ or Cl ;

$R_5=H$ or methyl;

$Y_1=$ oxygen or bond;

$n=0-3$;

$R'_1-R'_3$ =group of formula (IV), H or aliphatic such as lower aliphatic (e.g. 1-6C aliphatic) or fatty aliphatic (e.g. 6-20C aliphatic); $X'_1=H$, halo (preferably Cl) or methyl (preferably H or Cl , especially H);

$X'_2=H$, halo (preferably Cl) or methyl (preferably Cl or methyl, especially Cl);

$R'_4=H$ or methyl (preferably H); and $n'=1-3$.

At least one group R_1-R_4 is of formula (II). At least two of $R'_1-R'_3$ is a group of formula (IV) and the groups $R'_1-R'_3$ which are not of formula (IV) are selected from H or aliphatic such as lower aliphatic (e.g. 1-6C aliphatic) and fatty aliphatic (e.g. 6-20C aliphatic) (preferably each H). INDEPENDENT CLAIMS are included for the following: (1) a herbicidal composition comprising (I) or (III); (2) preparation of (I);

(3) controlling weeds involving providing the composition; optionally diluting the composition preferably with water and applying the herbicidal composition to an area of land comprising weeds and/or in which pre-emergent control is desired; and (4) preparing the composition involving providing the ester of (I) in solid form, milling the solid to form a solid particulate herbicide; and optionally formulating the particulate solid with at least one carriers, adjuvants and fillers, and further the compound (I) is milled in the presence of other materials which can be liquid or solid. ACTIVITY - Herbicide. No biological data given.

MECHANISM OF ACTION - None given.

USE - In herbicidal composition for controlling weeds (claimed).

ADVANTAGE - The compound effectively controls weeds in both crop and non-crop situations. The compounds have a softening point significantly higher than the currently used aryl ester and aryloxy ester herbicides enabling them to be processed and handled in solid form; and can be processed to achieve particle size reduction to form fine particles thus making the compounds particularly suited to storage and handling in solid formulations such as in powders, suspension concentrates, prills and water dispersible granules.

L107 ANSWER 34 OF 46 WPIX COPYRIGHT 2016 THOMSON REUTERS on STN
 ACCESSION NUMBER: 2007-445986 [200743] WPIX Full-text
 DOC. NO. CPI: C2007-162249 [200743]
 TITLE: Pet food, useful for treating obesity in pet animals,
 comprises preset amounts of fats and oils containing
 diacyl glycerol, and carbohydrate source of modified
 starch, barley, sorghum, corn or high amylase starch
 DERWENT CLASS: B05; C03; D13
 INVENTOR: BAN T; OTSUJI K; SHIBA T; UMEDA T
 PATENT ASSIGNEE: (KAOS-C) KAO CORP
 COUNTRY COUNT: 116

PATENT INFO ABBR.:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
WO 2007046441	A1	20070426	(200743)*	JA	41 [3]	
JP 2007110914	A	20070510	(200743)	JA	12	
JP 2007110915	A	20070510	(200743)	JA	12	
JP 2007110916	A	20070510	(200743)	JA	9	
JP 2007135586	A	20070607	(200743)	JA	10	
EP 1946651	A1	20080723	(200851)	EN		
US 20090148560	A1	20090611	(200939)	EN		
EP 1946651	B1	20110323	(201121)	EN		
DE 602006020903	E	20110505	(201130)	DE		
JP 4768390	B2	20110907	(201158)	JA	12	
JP 4768391	B2	20110907	(201158)	JA	9	
JP 4897426	B2	20120314	(201219)	JA	10	

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 2007046441	A1	WO 2006-JP320778	20061018
JP 2007110914	A	JP 2005-302651	20051018
JP 4768390	B2	JP 2005-302651	20051018
JP 2007110915	A	JP 2005-302653	20051018
JP 2007110916	A	JP 2005-302654	20051018
JP 4768391	B2	JP 2005-302654	20051018
DE 602006020903	E	DE 2006-602006020903	20061018
EP 1946651	A1	EP 2006-811971	20061018
EP 1946651	B1	EP 2006-811971	20061018
DE 602006020903	E	EP 2006-811971	20061018
JP 2007135586	A	JP 2006-284070	20061018
EP 1946651	A1	WO 2006-JP320778	20061018
US 20090148560	A1 PCT Application	WO 2006-JP320778	20061018
EP 1946651	B1 PCT Application	WO 2006-JP320778	20061018
DE 602006020903	E PCT Application	WO 2006-JP320778	20061018
US 20090148560	A1	US 2008-89813	20080410
JP 4897426	B2	JP 2006-284070	20061018

FILING DETAILS:

PATENT NO	KIND	PATENT NO
DE 602006020903	E	Based on
JP 4768390	B2	Previous Publ
		EP 1946651 A
		JP 2007110914 A

JP 4768391 B2	Previous Publ	JP 2007110916 A
EP 1946651 A1	Based on	WO 2007046441 A
EP 1946651 B1	Based on	WO 2007046441 A
DE 602006020903 E	Based on	WO 2007046441 A
JP 4897426 B2	Previous Publ	JP 2007135586 A

PRIORITY APPLN. INFO: JP 2005-302651 20051018
 JP 2005-302652 20051018
 JP 2005-302653 20051018
 JP 2005-302654 20051018

AB WO 2007046441 A1 UPAB: 20090619

NOVELTY - Pet food (C1) comprises fats and oils containing diacyl glycerol (at least 20 weight%), and carbohydrate source of modified starch, barley, sorghum, corn or high amylase starch. ACTIVITY - Anorectic.

The anorectic effect of the pet food comprising fats and oils (20 weight% or more of diacyl glycerol and modified starch) was evaluated using obese male beagle dogs. The blood neutral fat concentration and the blood insulin concentration after a meal were measured. The result showed that the pet food effectively suppressed the blood neutral fat concentration and a blood insulin concentration after a meal.

MECHANISM OF ACTION - None given.

USE - (C1) Is useful for preventing or suppressing obesity.

ADVANTAGE - (C1) Is excellent in obesity preventive or reducing effect without reducing the food intake and has less influence on the conditions of feces.

L107 ANSWER 35 OF 46 WPIX COPYRIGHT 2016 THOMSON REUTERS on STN
 ACCESSION NUMBER: 2002-329813 [200236] WPIX Full-text
 TITLE: Dough composition for preparing dough/baked product, includes enzyme(s) encapsulated/coated by lipid substance, having phase transition and barrier property, to control release of enzyme to surrounding dough
 DERWENT CLASS: D11; D16
 INVENTOR: BUDOLFSSEN G; CALLISEN T H; FUGLSANG C C
 PATENT ASSIGNEE: (NOVO-C) NOVOZYMES AS
 COUNTRY COUNT: 95

PATENT INFO ABBR.:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
WO 2002019828	A1	20020314	(200236)*	EN	39[0]	
AU 2001083817	A	20020322	(200251)	EN		
US 20020094367	A1	20020718	(200254)	EN		

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 2002019828	A1	WO 2001-DK583	20010907
US 20020094367	A1 Provisional	US 2000-232471P	20000913
AU 2001083817	A	AU 2001-83817	20010907
US 20020094367	A1	US 2001-948265	20010907

FILING DETAILS:

PATENT NO	KIND	PATENT NO
AU 2001083817	A Based on	WO 2002019828 A

PRIORITY APPLN. INFO: DK 2000-1339 20000908

AB WO 2002019828 A1 UPAB: 20110106

NOVELTY - A dough composition (DC) comprises: (1) enzyme(s) encapsulated or coated by a lipid substance; (2) flour; and (3) optional additional dough ingredients. The lipid substance provides a barrier at a temperature of less than 25 degrees C and inhibits release of enzyme(s) to the surrounding dough, and undergoes a phase transition at 25-60 degrees C and allows release of the enzyme(s).

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for: (i) Preparation of DC which involves adding the lipid encapsulated/coated enzyme to a dough mixture; (ii) Use of the encapsulated/coated enzymes in DC; (iii) Method for improving properties of DC, which involves adding encapsulated/coated enzyme to dough mixture, before baking to obtain a baked product;

(iv) Preparation of the baked product which involves baking the dough;

(v) Dough product; and

(vi) Baked product.

USE - For use in production of dough/baked product such as bread, roll, French baguette-type bread, pasta, pita bread, tortilla, taco, cake, pancake, biscuit, cookie, pie crust, steamed bread or crisp bread.

ADVANTAGE - The encapsulated or coated enzyme(s) controls the release of enzyme(s) into the dough, thereby increases-strength, -elasticity, -stability, reduces-stickiness, improves-extensibility, -machinability (thereby provides high industrial value), increases volume, improves-crumbs structure, -softness, -flavor and/or -antistaling properties, of fresh or frozen dough. High quality dough/bread product can be obtained even from poor quality flour, by the method. The reduced particle size of the encapsulated/coated enzyme(s) facilitates good mix-ability of the enzyme with the dough.

L107 ANSWER 36 OF 46 WPIX COPYRIGHT 2016 THOMSON REUTERS on STN
 ACCESSION NUMBER: 2002-061834 [200208] WPIX Full-text
 DOC. NO. CPI: C2002-017573 [200208]
 TITLE: New ferulyl-substituted or coumaryl-substituted
 acylglycerols as sunscreen ingredients/agents
 DERWENT CLASS: A60; D21; E14; G02
 INVENTOR: COMPTON D L; LASZIO J A; LASZLO J A
 PATENT ASSIGNEE: (USDA-C) US DEPT OF AGRICULTURE; (USDA-C) US SEC OF AGRIC
 COUNTRY COUNT: 91

PATENT INFO ABBR.:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
WO 2001072683	A1	20011004	(200208)*	EN	24[1]	
AU 2001047851	A	20011008	(200208)	EN		
US 6346236	B1	20020212	(200219)	EN		

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
WO 2001072683	A1	WO 2001-US9962	20010328
US 6346236	B1	US 2000-535826	20000328
AU 2001047851	A	AU 2001-47851	20010328

FILING DETAILS:

PATENT NO	KIND	PATENT NO
AU 2001047851 A	Based on	WO 2001072683 A

PRIORITY APPLN. INFO: US 2000-535826 20000328

AB WO 2001072683 A1 UPAB: 20050524

NOVELTY - Ferulyl-substituted or coumaryl-substituted acylglycerols are new.
 DETAILED DESCRIPTION - Ferulyl-substituted or coumaryl-substituted
 acylglycerols of formula (I) are new. R1 = H or OCH3;

R2, R3 = OH or 2-24C fatty acid INDEPENDENT CLAIMS are also included for (A) a
 sunscreen formulation, comprising a sunscreen agent of formula (I); and a
 carrier for the sunscreen agent which is present in the formulation at a level
 of 0.1-20 weight%; and (B) a method of making a compound of formula (I).

USE - The inventive compounds are useful as sunscreen agents to provide
 protection from adverse effects of ultraviolet (UV) radiation. They are
 principally used as a topical sunburn protectant for human skin. They can also
 be used in veterinary applications as a skin protectant.

ADVANTAGE - The inventive compounds can be synthesized from natural materials,
 while providing a value-added use for vegetable oils. They provide broad
 spectrum ultraviolet (UVA and UVB) protection. They can be incorporated into
 sunscreen formulations.

L107 ANSWER 37 OF 46 BIOSIS COPYRIGHT (c) 2016 The Thomson Corporation on
 STN DUPLICATE 8

ACCESSION NUMBER: 1990:375118 BIOSIS Full-text

DOCUMENT NUMBER: PREV199090061799; BA90:61799

TITLE: NEW AND FUTURE USES OF ENZYMES IN FOOD PROCESSING.

AUTHOR(S): WHITAKER J R [Reprint author]

CORPORATE SOURCE: DEP FOOD SCI TECHNOL, UNIV CALIFORNIA, DAVIS, CALIF 95616,
 USA

SOURCE: Food Biotechnology (New York), (1990) Vol. 4, No. 2, pp.
 669-698.

CODEN: FBIOEE. ISSN: 0890-5436.

DOCUMENT TYPE: Article

FILE SEGMENT: BA

LANGUAGE: ENGLISH

ENTRY DATE: Entered STN: 21 Aug 1990

Last Updated on STN: 21 Aug 1990

ABSTRACT: Enzymes are often thought of by the food processing industry as
 detrimental, to be destroyed by heat treatment. This is based on undesirable
 changes in texture, color, flavor, aroma and nutrition that may occur on
 harvest and storage. However, the uses of enzymes in brewing, cheese
 manufacture, meat tenderization, baking and protein hydrolysis are well known,
 having been used for many years. Of more recent utilization are enzymes for
 making glucose and fructose from starch, for separating racemic mixtures of D-
 and L-amino acids, for cleaning of processing equipment, for changes in
 functionality of high protein foods and increasing juice yield and clarity. In
 the last five years there has been renewed interest in developing additional
 uses of enzymes for food processing. In general, these methods require much
 more specificity and controlled conditions than previous methods. These
 methods include use of lipases for transesterification of triglycerides,
 production of specific monoglycerides and high molecular weight mono fatty acid

esters and waxes, production of noncaloric sweeteners, production of controlled size peptides with enhanced functional properties including solubility, removal of unwanted toxic or antinutritional factors, for more precise control of heat processing of foods, for enhanced flavor development, as tools in production of transgenic plants, animals, and microorganisms and for food analysis. Examples of these and other new uses of enzymes in foods will be presented.

CONCEPT CODE: Biochemistry studies - Proteins, peptides and amino acids 10064
 External effects - Temperature as a primary variable 10614
 Enzymes - Methods 10804
 Enzymes - Physiological studies 10808
 Food technology - General and methods 13502
 Food technology - Evaluations of physical and chemical properties 13530
 Food technology - Preparation, processing and storage 13532
 Food microbiology - Food and beverage fermentation 39003

INDEX TERMS: Major Concepts
 Enzymology (Biochemistry and Molecular Biophysics);
 Foods

INDEX TERMS: Miscellaneous Descriptors
 FOOD PROCESSING TEMPERATURE EFFECTS

L107 ANSWER 38 OF 46 BIOSIS COPYRIGHT (c) 2016 The Thomson Corporation on STN

ACCESSION NUMBER: 2011:525271 BIOSIS Full-text
 DOCUMENT NUMBER: PREV201100525271
 TITLE: Immobilized *Rhizopus oryzae* lipase catalyzed synthesis of palm stearin and cetyl alcohol wax esters: Optimization by Response Surface Methodology.

AUTHOR(S): Sellami, Mohamed; Aissa, Imen; Frikha, Fakher; Gargouri, Youssef; Miled, Nabil [Reprint Author]

CORPORATE SOURCE: Univ Sfax, Lab Biochim and Genie Enzymat Lipases, ENIS, Route Soukra, Bpw 1173, Sfax, Tunisia
 nmiled@yahoo.com

SOURCE: BMC Biotechnology, (JUN 17 2011) Vol. 11, pp. Article No.: 68.
 ISSN: 1472-6750. E-ISSN: 1472-6750.

DIGITAL OBJECT ID: 10.1186/1472-6750-11-68
 DOCUMENT TYPE: Article
 LANGUAGE: English
 ENTRY DATE: Entered STN: 17 Aug 2011
 Last Updated on STN: 17 Aug 2011

ABSTRACT:Background: Waxes are esters of long-chain fatty acids and long-chain alcohols. Their principal natural sources are animals (sperm whale oil) and vegetables (jojoba) which are expensive and not easily available. Wax esters synthesized by enzymatic transesterification, using palm stearin as raw material, can be considered as an alternative to natural ones.Results: Palm stearin is a solid fraction obtained by fractionation of palm oil. Palm stearin was esterified with cetyl alcohol to produce a mixture of wax esters. A non-commercial immobilized lipase from *Rhizopus oryzae* was used as biocatalyst. Response surface methodology was employed to determine the effects of the temperature (30-50 degrees C), the enzyme concentration (33.34-300 IU/mL), the alcohol/palm stearin molar ratio (3-7 mol/mol) and the substrate concentration (0.06-0.34 g/mL) on the conversion yield of palm stearin. Under optimal conditions (temperature, 30 degrees C; enzyme concentration, 300 IU/mL; molar ratio 3 and substrate concentration 0.21

g/mL) a high conversion yield of 98.52% was reached within a reaction time of 2 h. Conclusions: Response surface methodology was successfully applied to determine the optimum operational conditions for synthesis of palm stearin based ~~wax esters~~. This study may provide useful tools to develop economical and efficient processes for the synthesis of ~~wax esters~~.

CONCEPT CODE: Mathematical biology and statistical methods 04500
 Biophysics - Biocybernetics 10515
 Enzymes - General and comparative studies: coenzymes 10802
 Food microbiology - General and miscellaneous 39008
 Plant physiology - Enzymes 51518

INDEX TERMS: Major Concepts
 Enzymology (Biochemistry and Molecular Biophysics);
 Models and Simulations (Computational Biology);
 Bioprocess Engineering

INDEX TERMS: Chemicals & Biochemicals
 palm oil; immobilized lipase: biocatalyst; cetyl
 alcohol ~~wax ester~~: synthesis; stearin: synthesis

INDEX TERMS: Methods & Equipment
 response surface model: mathematical and computer
 techniques; enzyme immobilization: laboratory
 techniques; enzymatic transesterification method:
 laboratory techniques

INDEX TERMS: Miscellaneous Descriptors
 optimum operational condition

ORGANISM: Classifier
 Phycomycetes 15900
 Super Taxa
 Fungi; Plantae
 Organism Name
 Rhizopus oryzae (species)
 Taxa Notes
 Fungi, Microorganisms, Nonvascular Plants, Plants

REGISTRY NUMBER: 11099-07-3 (stearin)

L107 ANSWER 39 OF 46 CEABA COPYRIGHT 2016 WTI-Frankfurt eG on STN

DUPLICATE 3

ACCESSION NUMBER: 2015(07):1394 CEABA-VTB FILE SEGMENT V Full-text
 DOCUMENT NUMBER: 20150500341
 TITLE: Purification and characterization of lipase from

Burkholderia sp. EQ3 isolated from wastewater from a
 canned fish factory and its application for the
 synthesis of ~~wax esters~~

AUTHOR: Ungcharoenwiwat, Pakpimol; H-kittikun, Aran
 CORPORATE SOURCE: Prince of Songkla University, Hatyai, TH
 SOURCE: Journal of Molecular Catalysis, B: Enzymatic (2015)
 115, 52 Reference(s), 96-104, xf, xt
 ISSN: 1381-1177
 Standort: TIB-ZL696

DOCUMENT TYPE: Journal

LANGUAGE: English

ABSTRACT: The aim of this study was to purify and characterize the lipase
 produced by Burkholderia sp. EQ3 a bacterium isolated from the wastewater pond of a
 canned fish factory. The lipase was purified to homogeneity with a 70-fold increase
 in its activity by chilled acetone precipitation, Q-Sepharose Fast Flow and
 Sephadex G-50 column chromatography, respectively. The molecular mass of the
 purified lipase was 30.7 kDa. The purified lipase showed optimal activity at pH
 7.0-7.5 and 30 C. The enzyme was stable over the pH range of 5.0-8.0 and
 temperatures of between 30-55 C for 1 h. Its half-life was 2 h at 55 C. The lipase

activity was enhanced in the presence of Ca(exp 2+), Mg(exp 2+) and K(exp +) while it was inactivated by Cu(exp 2+), Fe(exp 2+) and Zn(exp 2+). It hydrolyzed the natural triglycerides with its highest activity on coconut oil (120%), olive oil (101%) and palm olein (100%). Gum arabic (1%) significantly increased the lipase activity whereas 1.0 mM phenyl methyl sulphonyl fluoride strongly reduced the activity. The purified lipase EQ3 retained 80% activity in iso-propanol, but was inactivated by ethanol and iso-octane as well as other hydrophobic solvents. The lipase EQ3 was immobilized by adsorption with Accurel MP-100 and used for wax esters synthesis and compared with five commercial immobilized lipases (Lipozyme RM IM, Lipozyme TL IM, Novozyme 435, Lipase PS and Lipase AK). The transesterification reaction was carried out between coconut oil, palm olein and jatropha oil with oleyl alcohol by using 1 U of enzyme, a substrate molar ratio of oil and oleyl alcohol of 1:3 in hexane at 37 C and 150 rpm for 72 h. The immobilized lipase EQ3 was most efficient in the synthesis of wax esters with 60.3, 49.6 and 50.1% wax esters from coconut oil, palm olein and jatropha oil, respectively. For the five commercial immobilized lipases, Lipozyme RM IM exhibited the highest wax esters synthesis with 49.2, 41.4 and 48.1% wax esters, respectively. CLASSIFICATION CODE: 3PZC Biotransformation and enzymatic processes

3PZS Biotechnologically manufactured products
3PZA Fermentation, cell culture
CONTROLLED TERM: effluent; wax; esters; acetone; molecular mass;
enzymes; triglycerides; olive oils; propanol; ethanol;
octane; solvents; half-life; bacteria; canned fish;
immobilized lipase; oleyl alcohol

L107 ANSWER 40 OF 46 CEABA COPYRIGHT 2016 WTI-Frankfurt eG on STN
ACCESSION NUMBER: 1996(05):6671 CEABA-VTB FILE SEGMENT B Full-text
DOCUMENT NUMBER: CEABA: 1996:72822
TITLE: Synthesis of original fatty acid esters from vegetable oils

AUTHOR: Goma, N.; Legoy, M.-D. (Univ. de La Rochelle, 17042 La Rochelle, France)

SOURCE: Biochem. Eng. - Stuttgart, Proc. Int. Symp. (1995),
p.40-42, 3f
CODEN: 57KIAI
ISBN: 3-00-000360-6

DOCUMENT TYPE: Conference
LANGUAGE: English

ABSTRACT: Paper given at the Third International Symposium on Biochemical Engineering, Stuttgart, Germany, 6-8.3.1995. The synthesis of wax esters from methyl oleate and stearyl alcohol is described. The transesterification was carried out by a thermostable immobilized lipase (lipozyme M) from *Mucor miehi*, in low water media without solvent addition, essentially in the reactants. The two reactants were mixed in stoichiometric ratio in a vial at 55°C under stirring, with 0.35-2.0% lipozyme. A high conversion rate of 80% ester in 1 hour was obtained. High yields (90-100%) were obtained within 24 hours except at the lowest enzyme concentration. The initial reaction rate was directly proportional to enzyme quantity. (Moore). CLASSIFICATION CODE: 3PLA Chemical equilibrium, kinetics, catalysis,

chemical solutions
3BZ Biosciences , life sciences
3PZC Biotransformation and enzymatic processes
3PZS Biotechnologically manufactured products
CONTROLLED TERM: ENZYME; ESTER; IMMOBILIZATION; LIPASE

L107 ANSWER 41 OF 46 COMPENDEX COPYRIGHT 2016 EEI on STN.
ACCESSION NUMBER: 2016-1502215778 COMPENDEX Full-text
TITLE: The collaborative study on the enzymatic analysis of
positional distribution of short- and mediumchain fatty

acids in milk fat using immobilized candida antarctica lipase B

AUTHOR(S): Yoshinaga Kazuaki(1); Nagai Toshiharu(1); Sato Shinichi(2); Sasaki Ryo(3); Asada Mihoko(4); Tsukahara Yuki(4); Hori Ryuji(5); Imagi Jun(5); Sano Takashi(5); Miyazaki Yosuke(6); Saito Katsuyoshi(7); Sasaki Akiko(8); Sato Chiemi(8); Yamashita Atsushi(9); Watanabe Shimpei(10); Watanabe Yomi(11)
Correspondence(s): Watanabe Yomi(12)

CORPORATE SOURCE: (1)Tsukishima Foods Industry Co, 3-17-9 Higashi Kasai, Edogawa-ku, Japan, 134-8520
(2)Japan Food Research Laboratories, 6-11-10 Nagayama, Tama, Japan, 206-0025
(3)Miyoshi Oil and Fat Co, 4-66-1, Horikiri, Katsushika-ku, Japan, 124-8510
(4)Showa Sangyo Co, 2-20-2 Hinode, Funabashi, Japan, 273-0015
(5)J-Oil Mills, Inc, 7-41 Daikokucho, Tsurumiku, Japan, 230-0053
(6)NOF Co, 3-3, Chidori-cho, Kawasaki-ku, Kawasaki, Japan, 210-0865
(7)Kao Co, 2-1-3 Bunka, Sumidaku, Japan, 131-8501
(8)The Nisshin Oil Group, 1 Shinmeicho, Yokosuka, Japan, 239-0832
(9)ADEKA Co, 7-2-34 Higashiogu, Arakawa-ku, Japan, 116-8553
(10)Fuji Oil Co, 1 Sumiyoshi-cho, Izumisano, Japan, 598-8540
(11)Osaka Municipal Technical Research Institute, 1-6-50 Morinomiya, Joto-ku, Japan, 536-8553
(12)Biomaterials and Commodity Chemicals Research Division, Osaka Municipal Technical Research Institute
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SOURCE: Journal of Oleo Science (1 Apr 2016), Volume 65, Number 4, pp. 291-302, 16 refs.
ISSN: 1345-8957 E-ISSN: 1347-3352
DOI: 10.5650/jos.ess15260
Published by: Japan Oil Chemists Society

COUNTRY OF PUBLICATION: Japan

DOCUMENT TYPE: Journal; Article

LANGUAGE: English

SUMMARY LANGUAGE: English

ENTRY DATE: Entered STN: 18 Apr 2016
Last updated on STN: 18 Apr 2016

ABSTRACT: The positional distributions of fatty acids (FAs) in milk fat containing short- and medium-chain FAs were analyzed by sn-1(3)-selective transesterification of triacylglycerols (TAGs) with ethanol using immobilized *Candida antarctica* lipase B (CALB), in a collaborative study conducted by 10 laboratories. The mean C4:0, C6:0, and C8:0 FA contents, when analyzed as propyl esters (PEs) using gas chromatography (GC) with a DB-23 capillary column, were found to be 3.0, 2.0, and, 1.3 area%, respectively. Their reproducibility standard deviations were 0.33, 0.18, and 0.19, respectively. The mean C4:0, C6:0, and C8:0 contents at the sn-2 position were 0.3, 0.4, and 1.0 area%, respectively. Their reproducibility standard deviations were 0.17, 0.11, and 0.19, respectively. The reproducibility standard deviations of C4:0, C6:0, and C8:0 FAs at the sn-2 position were either the same as or smaller than those for milk fat, although the FA contents at the sn-2 position were smaller than those in the milk fat. Therefore, it was concluded that the CALB method for estimating the regiospecific distribution is applicable to TAGs containing short- and medium-chain FAs. When

estimating the short-chain (SC) FA contents in fats and oils by GC, it is better to analyze SCFAs as PEs or butyl esters, and not as methyl esters, in order to prevent loss of SCFAs during the experimental procedure because of their volatility and water solubility. This study also revealed that the stationary phase of the GC capillary column affected the flame ionization detector (FID) response of SCFAs. The theoretical FID correction factor (MWFA/active carbon number/atomic weight of carbon) fitted well with the actual FID responses of C4:0-C12:0 FAs when they were analyzed as PEs using a DB-23 column; however, this was not the case when the GC analysis was performed using wax-type columns. CLASSIFICATION CODE: 461.9

Biology; 602.1 Mechanical Drives; 801 Chemistry;

802.2 Chemical Reactions; 802.3 Chemical Operations;
804 Chemical Products Generally; 804.1 Organic
Compounds; 822.3 Food Products; 922.2 Mathematical
Statistics

CONTROLLED TERM: *Oils and fats; Candida; Chains; Column chromatography;
Esters; Fatty acids; Gas chromatography; Ionization of
gases; Isomers; Regioselectivity; Statistics; Yeast
SUPPLEMENTARY TERM: Candida antarctica lipase; Candida antarctica lipase
B; Collaborative study; Flame ionization detectors;
Medium-chain fatty acids; Milk fats; Regiospecific;
Reproducibility standard deviations

L107 ANSWER 42 OF 46 COMPENDEX COPYRIGHT 2016 EEI on STN.

ACCESSION NUMBER: 2010-2112949471 COMPENDEX Full-text

TITLE: Lipase-catalyzed synthesis and properties of
silicone aromatic polyesters and silicone aromatic
polyamides

AUTHOR(S): Poojari Yadagiri(1); Clarson Stephen J.(1)

Correspondence(s): Poojari Y.(1)

CORPORATE SOURCE: (1)Department of Chemical and Materials Engineering,
NSF I/UCRC Membrane Applied Science and Technology
Center, University of Cincinnati, Cincinnati, OH 45221,
United States of America

SOURCE: Macromolecules (25 May 2010), Volume 43, Number 10, pp.
4616-4622, 23 refs.

CODEN: MAMOBX ISSN: 0024-9297

DOI: 10.1021/ma100548z

Published by: American Chemical Society, 2540 Olentangy
River Road, P.O. Box 3337, OH 43210-3337, Columbus,
United States of America

COUNTRY OF PUBLICATION: United States of America

DOCUMENT TYPE: Journal; Article

LANGUAGE: English

SUMMARY LANGUAGE: English

ENTRY DATE: Entered STN: 31 May 2010

Last updated on STN: 6 Dec 2010

ABSTRACT: Candida antarctica lipase B (CALB) immobilized on a macroporous acrylic resin (Novozym 435) was used to enzymatically synthesize silicone aromatic polyesters (SAPEs) and silicone aromatic polyamides (SAPAs) in toluene under mild reaction conditions. The SAPEs were synthesized using α,ω - (dihydroxyalkyl)-terminated poly(dimethylsiloxane) (HAT-PDMS, molar mass $M_n = 2500$ g mol⁻¹), and the SAPAs were synthesized using α,ω -(diaminopropyl)-terminated poly(dimethylsiloxane) (APT-PDMS, having two different molar masses, M_n , 1000 and 4700 g mol⁻¹, respectively). Each of the polymers was made by a transesterification reaction with dimethyl terephthalate (DMT) in toluene (1:2 w/v ratio of monomers to solvent) at a temperature in the range of 80-90 °C under vacuum. Toluene was employed as the solvent in order to solubilize the DMT in the reaction mixture. The methanol byproduct was recovered from the reaction mixture along with the toluene by applying vacuum, and thus the transesterification

reaction was driven forward. The enzymatically synthesized polymers were characterized by GPC, FTIR, ¹H NMR, XRD, DSC, and TGA. Higher molar masses were obtained for the SAPEs compared to those of the SAPAs, even though similar reaction conditions were used. The thermal properties of the resulting polymers were seen to depend on the molar masses of the SAPEs and the SAPAs. Both types of polymer were found to be amorphous liquids at room temperature. However, below room temperature the SAPA samples were found to be a sticky wax-like material which contained a crystal-like phase that showed a melting endotherm by DSC analysis. The absence of a melting endotherm in the SAPEs and the relatively low melting point of the SAPAs may be attributed to the presence of long chain highly flexible PDMS segments in the polymers. .COPYRGHT. 2010 American Chemical Society. CLASSIFICATION CODE: 802.3 Chemical Operations; 803 Chemical Agents and

Basic Industrial Chemicals; 804.1 Organic Compounds; 815.1 Polymeric Materials; 943.1 Mechanical Instruments; 815.1.1 Organic Polymers; 817 Plastics, Products and Applications; 818.2 Elastomers; 942.2 Electric Variables Measurements; 816 Plastics Processing and Machinery; 802.2 Chemical Reactions; 801.4 Physical Chemistry; 461 Bioengineering; 531.1 Metallurgy; 604 Metal Cutting and Machining; 631 Fluid Flow; 633 Vacuum Technology; 641.1 Thermodynamics; 722 Computer Hardware; 723 Computer Software, Data Handling and Applications

CONTROLLED TERM: *Synthesis (chemical); Amides; Amino acids; Aromatic compounds; Computer system recovery; Dilatometers; Esters; Melting; Methanol; Microchannels; Molar mass; Organic solvents; Polyamides; Polyester resins; Polyesters; Polymers; Resins; Silicones; Thermodynamic properties; Toluene; Vacuum

SUPPLEMENTARY TERM: Acrylic resins; Aromatic polyamides; Aromatic polyesters; *Candida antarctica* lipase B; Dimethyl terephthalate; FTIR; lipase-catalyzed synthesis; Long chains; Low melting point; Macroporous; Mild reaction conditions; Novozym435; Reaction conditions; Reaction mixture; Room temperature; Synthesized polymers; Thermal properties; Transesterification reaction; XRD

L107 ANSWER 43 OF 46 COMPENDEX COPYRIGHT 2016 EEI on STN.

ACCESSION NUMBER: 2006-109743965 COMPENDEX Full-text

TITLE: Isolation of long-chain aliphatic alcohols from beeswax using lipase-catalyzed methanolysis in supercritical carbon dioxide

AUTHOR(S): Jackson Michael A.(1); Eller Fred J.(1)

Correspondence(s): Jackson M.A.(1)

CORPORATE SOURCE: (1)New Crops Research Unit, USDA/ARS/NCAUR, 1815 North University Street, Peoria, IL 61604, United States of America

EMAIL: jacksonmic@ncaur.usda.gov

SOURCE: Journal of Supercritical Fluids (Apr 2006), Volume 37, Number 2, pp. 173-177, 23 refs.

CODEN: JSFLEH ISSN: 0896-8446

DOI: 10.1016/j.supflu.2005.08.008

Published by: Elsevier

PUBL. ITEM IDENTIFIER: S0896844605001713

COUNTRY OF PUBLICATION: Netherlands

DOCUMENT TYPE: Journal; Article; Theoretical; Experimental

LANGUAGE: English

SUMMARY LANGUAGE: English

ENTRY DATE: Entered STN: 4 Jan 2009

Last updated on STN: 4 Jan 2009

ABSTRACT: Aliphatic alcohols of chain lengths of 24-34 carbons have been found to be beneficial in treating hypercholesterolemia. Approximately 40% of beeswax is long-chain esters which can be transesterified in supercritical carbon dioxide to give these alcohols and fatty acid methyl esters. The methanolysis reaction was catalyzed by an immobilized lipase from *Candida antarctica* in flowing supercritical carbon dioxide and the alcohols were then isolated from the fatty acid methyl esters by precipitation from heptane. The alcohols were found in the following percentages: tetracosanol, 9.1; hexacosanol, 14.0; octacosanol, 18.4; triacontanol, 37.2; dotriacontanol, 21.1; tetratriacontanol, 0.3. The utility of the method was demonstrated by isolating fatty alcohols from jojoba oil and a mixture of triglycerides and waxes isolated from corn bran. .COPYRGT. 2005 Elsevier B.V. All rights reserved. CLASSIFICATION CODE: 461.2 Biological Materials; 802.2 Chemical Reactions;

804.1 Organic Compounds; 804.2 Inorganic Compounds;
931.2 Physical Properties of Gases, Liquids and Solids
CONTROLLED TERM: *Alcohols; Carbon dioxide; Catalysis; Enzymes; Esters;
Fatty acids; Supercritical fluids
SUPPLEMENTARY TERM: Beeswax; Lipase; Methanolysis; Triglycerides

L107 ANSWER 44 OF 46 COMPENDEX COPYRIGHT 2016 EEI on STN.

ACCESSION NUMBER: 2000-275180880 COMPENDEX Full-text

TITLE: Lipase-catalyzed alcoholysis of crambe oil and
camelina oil for the preparation of long-chain esters
AUTHOR(S): Steinke Georg(1); Kirchhoff Rita(1); Mukherjee Kumar
D.(1)

CORPORATE SOURCE: Correspondence(s): Steinke Georg(2)
(1)Inst. Biochem. Technol. of Lipids, H.P.
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SOURCE: JAOCS, Journal of the American Oil Chemists' Society
(2000), Volume 77, Number 4, pp. 361-366, 25 refs.
CODEN: JJASDH ISSN: 0003-021X
Published by: American Oil Chemists' Soc

DOCUMENT TYPE: Journal; Article; Experimental

LANGUAGE: English

ENTRY DATE: Entered STN: 4 Jan 2009

Last updated on STN: 4 Jan 2009

ABSTRACT: Crambe oil and camelina oil were transesterified with oleyl alcohol, the alcohols derived from crambe and camelina oils, n-octanol or isopropanol using Novozym 435 (immobilized lipase B from *Candida antarctica*), Lipozyme IM (immobilized lipase from *Rhizomucor miehei*), and papaya (*Carica papaya*) latex lipase as biocatalysts. The highest conversions to alkyl esters were obtained with Novozym 435 (up to 95%) in most cases, whereas Lipozyme IM and papaya latex lipase gave lower (40 to 50%) conversions. The conversions with long-chain alcohols (oleyl alcohol, crambe alcohols, and camelina alcohols) were higher (40 to 95%) than with medium-chain n-octanol (30 to 85%). Isopropyl esters of crambe oil and camelina oil were obtained with rather low conversions using Novozym 435 (<40%) and Lipozyme IM (about 10%) as biocatalysts, whereas with papaya latex lipase no isopropyl esters were formed. The conversions of crambe oil and camelina oil to oleyl and n-octyl esters using Novozym 435 as biocatalyst were hardly affected by the ratio of the substrates, but with Lipozyme IM the conversions to alkyl esters distinctly increased with an excess of alcohol substrate. CLASSIFICATION CODE: 461.8 Biotechnology; 801.2 Biochemistry; 802.2 Chemical

Reactions; 804.1 Organic Compounds
CONTROLLED TERM: *Vegetable oils; Alcohols; Bioconversion; Enzyme
immobilization; Esterification; Esters

SUPPLEMENTARY TERM: Camelina oil; Crambe oil; Isopropanol; Jojoba oil;
Lipase-catalyzed alcoholysis; Lipozyme; Octanol

L107 ANSWER 45 OF 46 COMPENDEX COPYRIGHT 2016 EEI on STN.

ACCESSION NUMBER: 1994-091348505 COMPENDEX Full-text
TITLE: Supercritical fluid chromatographic analysis of fish
oils
AUTHOR(S): Staby Arne(1); Borch-Jensen Christina(1); Balchen
Steen(1); Mollerup Jorgen(1)
Correspondence(s): Staby Arne(1)
CORPORATE SOURCE: (1)Dep of Chemical Engineering, Lyngby, Denmark
SOURCE: JAOCs, Journal of the American Oil Chemists' Society
(1994), Volume 71, Number 4, pp. 355-359, 28 refs.
CODEN: JJASDH ISSN: 0003-021X
Published by: Publ by American Oil Chemists' Soc
DOCUMENT TYPE: Journal; Article; Application; Experimental
LANGUAGE: English
ENTRY DATE: Entered STN: 3 Jan 2009
Last updated on STN: 3 Jan 2009

ABSTRACT: Various natural and processed fish oil triglyceride mixtures have been analyzed by capillary supercritical fluid chromatography (SFC). The analyses were performed on nonpolar columns to separate the components by lipid class and by the number of carbon atoms. The compounds separated included free fatty acids, squalene, α -tocopherol, cholesterol, ~~wax esters~~, cholesteryl esters, di- and triglycerides. This kind of analysis is not possible by gas chromatography or high-performance liquid chromatography methods without prior treatment of the fish oil, making SFC superior for this application. Applications of SFC to fish oils are given, including a control analysis of the various process steps in the refining of a fish oil, analysis of a ~~lipase-catalyzed transesterification~~ of a fish oil and the detection of polymeric artifacts. CLASSIFICATION CODE: 801.1 Chemistry, General; 802.2 Chemical Reactions;

804.1 Organic Compounds; 822.2 Food Processing
Operations; 822.3 Food Products

CONTROLLED TERM: *Oils and fats; Carbon dioxide; Cholesterol;
Chromatographic analysis; Column chromatography;
Esterification; Esters; Fatty acids; Lipids; Refining
SUPPLEMENTARY TERM: Fish oil; Supercritical fluid chromatography;
Triacylglycerol; Triglyceride; ~~Wax ester~~

L107 ANSWER 46 OF 46 EMBASE COPYRIGHT (c) 2016 Elsevier B.V. All rights reserved on STN

ACCESSION NUMBER: 2003021751 EMBASE Full-text
TITLE: ~~Wax esters~~ synthesis from heavy fraction of sheep milk
fat and cetyl alcohol by immobilised lipases.
AUTHORS IN PUB ORD: Salis, Andrea; Solinas, Vincenzo; Monduzzi, Maura
(correspondence)
AUTHOR: Salis, Andrea; Solinas, Vincenzo; Monduzzi, Maura
(correspondence)
CORPORATE SOURCE: Dipartimento di Scienze Chimiche, Universita di Cagliari,
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09042 Cagliari, Italy. monduzzi@unica.it
SOURCE: Journal of Molecular Catalysis B: Enzymatic, (17 Feb 2003)
Vol. 21, No. 4-6, pp. 167-174.
Refs: 17
ISSN: 1381-1177 CODEN: JMCEF8
DIGITAL OBJECT ID: 10.1016/S1381-1177(02)00124-8
PUBLISHER IDENT.: S 1381-1177(02)00124-8
COUNTRY: Netherlands
DOCUMENT TYPE: Journal; Article

FILE SEGMENT: 029 Clinical and Experimental Biochemistry
 LANGUAGE: English
 SUMMARY LANGUAGE: English
 ENTRY DATE: Entered Embase: 29 Jan 2003
 Last Updated on Embase: 29 Jan 2003

ABSTRACT: Wax esters were obtained from lipase-catalysed alcoholysis of triglycerides with cetyl alcohol, using n-hexane as solvent. The heavy triglyceride fraction (HTF), obtained by fractionation of sheep milk fat, was used as raw material. In the natural fat mixture GC analysis showed that palmitic, myristic, stearic and oleic acids are the most abundant fatty acids which are useful to produce wax esters. Reactions were tested for different amounts of Lipozyme RMIM catalyst, and the optimum concentration of 10mg catalyst/ml solution has been determined. The formation of the four main products, i.e. cetyl myristate, cetyl palmitate, cetyl oleate and cetyl stearate, was determined by HPLC/ELSD quantitative analysis. The optimum water activity in the reaction medium $a_w=0.35$ in the case of Lipozyme RMIM, and $a_w=0.53$ for Novozym 435 was found. Lipozyme RMIM (immobilised sn-1,3-specific lipase from *Rhizomucor miehei*) was more active than Novozym 435 (immobilised nonspecific lipase-B from *Candida antarctica*) towards wax esters production. The acyl migration of 2-monoglycerides was suggested as a crucial step to explain the higher yields produced by the 1,3-specific lipase.
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CONTROLLED TERM: Medical Descriptors:
 article
 Candida antarctica
 enzyme activity
 enzyme assay
 enzyme degradation
 enzyme mechanism
 enzyme specificity
 enzyme synthesis
 high performance liquid chromatography
 quantitative analysis
 Rhizomucor
 species comparison
 *synthesis
 transesterification

CONTROLLED TERM: Drug Descriptors:
 *hexadecanol
 monoacylglycerol
 myristic acid
 oleic acid
 palmitic acid
 stearic acid
 triacylglycerol lipase
 *wax

CAS REGISTRY NO.: (hexadecanol) 29354-98-1, 36653-82-4, 51260-59-4; (myristic acid) 1715-79-3, 544-63-8; (oleic acid) 112-80-1, 115-06-0; (palmitic acid) 57-10-3; (stearic acid) 57-11-4, 646-29-7; (triacylglycerol lipase) 9001-62-1; (wax) 83062-05-9

FILE 'HOME' ENTERED AT 10:58:36 ON 20 SEP 2016

Full Search History

=> d his nofile

(FILE 'HOME' ENTERED AT 10:32:40 ON 20 SEP 2016)

FILE 'CAPLUS' ENTERED AT 10:32:48 ON 20 SEP 2016

E US2014-14578075/APPS

L1 3 SEA SPE=ON ABB=ON PLU=ON US2014-14578075/APPS

FILE 'REGISTRY' ENTERED AT 10:33:30 ON 20 SEP 2016

E WAX ESTERS/CN

L2 1 SEA SPE=ON ABB=ON PLU=ON WAX ESTERS/CN
D RNL3 0 SEA SPE=ON ABB=ON PLU=ON 8063-08-9/CRN
E JOJOBA WAX/CNL4 1 SEA SPE=ON ABB=ON PLU=ON JOJOBA WAX/CN
D RNL5 0 SEA SPE=ON ABB=ON PLU=ON 61789-91-1/CRN
E LIPASE/CNL6 1 SEA SPE=ON ABB=ON PLU=ON LIPASE/CN
D RN

L7 4 SEA SPE=ON ABB=ON PLU=ON 9001-62-1/CRN

L8 9817 SEA SPE=ON ABB=ON PLU=ON LIPASE/CNS

FILE 'ZCAPLUS' ENTERED AT 10:34:08 ON 20 SEP 2016

E WAX ESTERS+ALL/CT

E WAXES+ALL/CT

E JOJOBA OIL+ALL/CT

E TRANSESTERIFICATION+ALL/CT

E TRANSESTERIFICATION CATALYSTS+ALL/CT

E TRANSESTERIFICATION ENTHALPY+ALL/CT

E TRANSESTERIFICATION KINETICS+AL/CT

E TRANSESTERIFICATION KINETICS+ALL/CT

E LIPASES+ALL/CT

E LIPASE+ALL/CT

E TRIACYLGLYCEROL LIPASE+ALL/CT

FILE 'HCAPLUS' ENTERED AT 10:36:55 ON 20 SEP 2016

L9 102744 SEA SPE=ON ABB=ON PLU=ON WAXES+OLD,NT/CT

L10 4867 SEA SPE=ON ABB=ON PLU=ON JOJOBA OIL+OLD/CT

L11 190515 SEA SPE=ON ABB=ON PLU=ON WAX OR WAXY? OR WAXI? OR WAXE? OR
(WAX OR WAXY? OR WAXI? OR WAXE?) (3A)ESTER? OR (OIL OR WAX OR
WAXY? OR WAXI? OR WAXE?) (3A) (JOJOBA OR HYDROGEN?(2A)JOJOBA? OR
(SIMMODSIA OR S) (W)CHINENSIS)

L12 20696 SEA SPE=ON ABB=ON PLU=ON TRANSESTERIFICATION+NT/CT

L13 7714 SEA SPE=ON ABB=ON PLU=ON TRANSESTERIFICATION CATALYSTS+NT/CT

L14 23 SEA SPE=ON ABB=ON PLU=ON TRANSESTERIFICATION ENTHALPY+OLD/CT

L15 927 SEA SPE=ON ABB=ON PLU=ON TRANSESTERIFICATION KINETICS+OLD/CT

L16 42460 SEA SPE=ON ABB=ON PLU=ON ?TRANSESTERIF?

L17 61050 SEA SPE=ON ABB=ON PLU=ON TRIACYLGLYCEROL LIPASE+NT/CT

L18 150908 SEA SPE=ON ABB=ON PLU=ON ?LIPASE?

L19 52 SEA SPE=ON ABB=ON PLU=ON (L2 OR L3 OR L4 OR L5 OR L9 OR L10
OR L11) AND (L12 OR L13 OR L14 OR L15 OR L16) AND (L6 OR L7 OR
L8 OR L17 OR L18)

L20 16221 SEA SPE=ON ABB=ON PLU=ON (L6 OR L7 OR L8 OR L17) (L) CAT/RL

L21 7409 SEA SPE=ON ABB=ON PLU=ON (L6 OR L7 OR L8 OR L17) (L)

?CATALY?

L22 428 SEA SPE=ON ABB=ON PLU=ON L13 (L) L18

L23 17284 SEA SPE=ON ABB=ON PLU=ON L18 (S) ?CATALY?
 L24 37 SEA SPE=ON ABB=ON PLU=ON L19 AND (L20 OR L21 OR L22 OR L23)
 L25 42 SEA SPE=ON ABB=ON PLU=ON (L2 OR L3 OR L4 OR L5 OR L9 OR
 L10) (L) L16
 L26 50 SEA SPE=ON ABB=ON PLU=ON (L12 OR L13 OR L14 OR L15) (L) L11
 L27 156 SEA SPE=ON ABB=ON PLU=ON L11 (S) L16
 L28 19 SEA SPE=ON ABB=ON PLU=ON L19 AND (L25 OR L26 OR L27)
 L29 1522 SEA SPE=ON ABB=ON PLU=ON (L6 OR L7 OR L8 OR L17) (L) L16
 L30 2658 SEA SPE=ON ABB=ON PLU=ON (L12 OR L13 OR L14 OR L15) (L) L18
 L31 4457 SEA SPE=ON ABB=ON PLU=ON L16 (S) L18
 L32 28 SEA SPE=ON ABB=ON PLU=ON L19 AND (L29 OR L30 OR L31)
 L33 141 SEA SPE=ON ABB=ON PLU=ON (L2 OR L3 OR L4 OR L5 OR L9 OR
 L10) (L) L18
 L34 106 SEA SPE=ON ABB=ON PLU=ON (L6 OR L7 OR L8 OR L17) (L) L11
 L35 254 SEA SPE=ON ABB=ON PLU=ON L11 (S) L18
 L36 32 SEA SPE=ON ABB=ON PLU=ON L19 AND (L33 OR L34 OR L35)
 L37 19 SEA SPE=ON ABB=ON PLU=ON L28 AND (L24 OR L32 OR L36)
 L38 17 SEA SPE=ON ABB=ON PLU=ON L24 AND L32 AND L36
 L39 27 SEA SPE=ON ABB=ON PLU=ON (L37 OR L38)
 L40 29 SEA SPE=ON ABB=ON PLU=ON ADDY J?/AU
 L41 356 SEA SPE=ON ABB=ON PLU=ON DALY C?/AU
 L42 13064 SEA SPE=ON ABB=ON PLU=ON BROWN J?/AU
 L43 2 SEA SPE=ON ABB=ON PLU=ON L40 AND L41 AND L42
 L44 80 SEA SPE=ON ABB=ON PLU=ON (L40 OR L41 OR L42 OR L43) AND (L2
 OR L3 OR L4 OR L5 OR L9 OR L10 OR L11)
 L45 19 SEA SPE=ON ABB=ON PLU=ON (L40 OR L41 OR L42 OR L43) AND
 (L12 OR L13 OR L14 OR L15 OR L16)
 L46 106 SEA SPE=ON ABB=ON PLU=ON (L40 OR L41 OR L42 OR L43) AND (L6
 OR L7 OR L8 OR L17 OR L18 OR L20 OR L21 OR L22 OR L23)
 L47 3 SEA SPE=ON ABB=ON PLU=ON L44 AND L45 AND L46
 L48 2 SEA SPE=ON ABB=ON PLU=ON L43 AND (L44 OR L45 OR L46 OR L47)
 L49 3 SEA SPE=ON ABB=ON PLU=ON (L43 OR L47 OR L48)

FILE 'WPIX' ENTERED AT 10:47:27 ON 20 SEP 2016

L50 17 SEA SPE=ON ABB=ON PLU=ON ADDY J?/AU
 L51 78 SEA SPE=ON ABB=ON PLU=ON DALY C?/AU
 L52 3875 SEA SPE=ON ABB=ON PLU=ON BROWN J?/AU
 L53 1 SEA SPE=ON ABB=ON PLU=ON L50 AND L51 AND L52
 L54 150717 SEA SPE=ON ABB=ON PLU=ON WAX/BI,ABEX,BIEX OR WAXY?/BI,ABEX,B
 IEX OR WAXI?/BI,ABEX,BIEX OR WAXE?/BI,ABEX,BIEX OR (WAX/BI,ABEX
 ,BIEX OR WAXY?/BI,ABEX,BIEX OR WAXI?/BI,ABEX,BIEX OR WAXE?/BI,A
 BEX,BIEX) (3A)ESTER?/BI,ABEX,BIEX OR (OIL/BI,ABEX,BIEX OR
 WAX/BI,ABEX,BIEX OR WAXY?/BI,ABEX,BIEX OR WAXI?/BI,ABEX,BIEX
 OR WAXE?/BI,ABEX,BIEX) (3A) (JOJOBA/BI,ABEX,BIEX OR HYDROGEN?/BI,
 ABEX,BIEX(2A)JOJOBA?/BI,ABEX,BIEX OR (SIMMODSIA/BI,ABEX,BIEX
 OR S/BI,ABEX,BIEX) (W)CHINENSIS/BI,ABEX,BIEX)
 L55 11281 SEA SPE=ON ABB=ON PLU=ON ?TRANSESTERIF?/BI,ABEX,BIEX
 L56 20648 SEA SPE=ON ABB=ON PLU=ON ?LIPASE?/BI,ABEX,BIEX
 L57 29 SEA SPE=ON ABB=ON PLU=ON L54 AND L55 AND L56
 L58 2511 SEA SPE=ON ABB=ON PLU=ON L56 (S) ?CATALY?/BI,ABEX,BIEX
 L59 9 SEA SPE=ON ABB=ON PLU=ON L57 AND L58
 L60 194 SEA SPE=ON ABB=ON PLU=ON L54 (S) L55
 L61 20 SEA SPE=ON ABB=ON PLU=ON L57 AND L60
 L62 596 SEA SPE=ON ABB=ON PLU=ON L55 (S) L56
 L63 23 SEA SPE=ON ABB=ON PLU=ON L57 AND L62
 L64 250 SEA SPE=ON ABB=ON PLU=ON L54 (S) L56
 L65 17 SEA SPE=ON ABB=ON PLU=ON L57 AND L64
 L66 9 SEA SPE=ON ABB=ON PLU=ON L59 AND (L61 OR L63 OR L65)
 L67 14 SEA SPE=ON ABB=ON PLU=ON L61 AND L63 AND L65

L68 16 SEA SPE=ON ABB=ON PLU=ON (L66 OR L67)
 L69 58 SEA SPE=ON ABB=ON PLU=ON (L50 OR L51 OR L52 OR L53) AND L54
 L70 7 SEA SPE=ON ABB=ON PLU=ON (L50 OR L51 OR L52 OR L53) AND L55
 L71 2 SEA SPE=ON ABB=ON PLU=ON (L50 OR L51 OR L52 OR L53) AND
 (L56 OR L58)
 L72 2 SEA SPE=ON ABB=ON PLU=ON L69 AND L70 AND L71
 L73 1 SEA SPE=ON ABB=ON PLU=ON L53 AND (L69 OR L70 OR L71 OR L72)
 L74 2 SEA SPE=ON ABB=ON PLU=ON (L53 OR L72 OR L73)

FILE 'MEDLINE, BIOSIS, CEABA-VTB, COMPENDEX, INSPEC, INSPHYS, EMBASE'
 ENTERED AT 10:52:11 ON 20 SEP 2016

L75 82 SEA SPE=ON ABB=ON PLU=ON ADDY J?/AU,AUTH
 L76 2006 SEA SPE=ON ABB=ON PLU=ON DALY C?/AU,AUTH
 L77 57048 SEA SPE=ON ABB=ON PLU=ON BROWN J?/AU,AUTH
 L78 0 SEA SPE=ON ABB=ON PLU=ON L75 AND L76 AND L77
 L79 78233 SEA SPE=ON ABB=ON PLU=ON WAX OR WAXY? OR WAXI? OR WAXE? OR
 (WAX OR WAXY? OR WAXI? OR WAXE?) (3A) ESTER? OR (OIL OR WAX OR
 WAXY? OR WAXI? OR WAXE?) (3A) (JOJOBA OR HYDROGEN? (2A) JOJOBA?
 OR (SIMMODSIA OR S) (W) CHINENSIS)
 L80 114 SEA SPE=ON ABB=ON PLU=ON (L2 OR L4)
 L81 26346 SEA SPE=ON ABB=ON PLU=ON ?TRANSESTERIF?
 L82 349505 SEA SPE=ON ABB=ON PLU=ON ?LIPASE?
 L83 62772 SEA SPE=ON ABB=ON PLU=ON L6
 L84 32 SEA SPE=ON ABB=ON PLU=ON (L79 OR L80) AND L81 AND (L82 OR
 L83)
 L85 29286 SEA SPE=ON ABB=ON PLU=ON L82 (S) ?CATALY?
 L86 14 SEA SPE=ON ABB=ON PLU=ON L84 AND L85
 L87 113 SEA SPE=ON ABB=ON PLU=ON L79 (S) L81
 L88 22 SEA SPE=ON ABB=ON PLU=ON L84 AND L87
 L89 4399 SEA SPE=ON ABB=ON PLU=ON L81 (S) L82
 L90 22 SEA SPE=ON ABB=ON PLU=ON L84 AND L89
 L91 262 SEA SPE=ON ABB=ON PLU=ON L79 (S) L82
 L92 25 SEA SPE=ON ABB=ON PLU=ON L84 AND L91
 L93 13 SEA SPE=ON ABB=ON PLU=ON L86 AND (L88 OR L90 OR L92)
 L94 17 SEA SPE=ON ABB=ON PLU=ON L88 AND L90 AND L92
 L95 24 SEA SPE=ON ABB=ON PLU=ON (L93 OR L94)
 L96 46 SEA SPE=ON ABB=ON PLU=ON (L75 OR L76 OR L77 OR L78) AND
 (L79 OR L80)
 L97 4 SEA SPE=ON ABB=ON PLU=ON (L75 OR L76 OR L77 OR L78) AND L81
 L98 318 SEA SPE=ON ABB=ON PLU=ON (L75 OR L76 OR L77 OR L78) AND
 (L82 OR L83 OR L85)
 L99 0 SEA SPE=ON ABB=ON PLU=ON L96 AND L97 AND L98
 L100 0 SEA SPE=ON ABB=ON PLU=ON L97 AND (L96 OR L98)
 L101 0 SEA SPE=ON ABB=ON PLU=ON L96 AND L98
 L102 4 SEA SPE=ON ABB=ON PLU=ON (L78 OR L97 OR L99 OR L100 OR
 L101)

FILE 'HCAPLUS' ENTERED AT 10:56:19 ON 20 SEP 2016
 D QUE L49

FILE 'WPIX' ENTERED AT 10:56:23 ON 20 SEP 2016
 D QUE L74

FILE 'MEDLINE, BIOSIS, CEABA-VTB, COMPENDEX, INSPEC, INSPHYS, EMBASE'
 ENTERED AT 10:56:34 ON 20 SEP 2016
 D QUE L102

FILE 'HCAPLUS, WPIX, MEDLINE, BIOSIS, EMBASE' ENTERED AT 10:56:42 ON 20
 SEP 2016

L103 5 DUP REM L49 L74 L102 (4 DUPLICATES REMOVED)
 ANSWERS '1-3' FROM FILE HCAPLUS
 ANSWER '4' FROM FILE MEDLINE
 ANSWER '5' FROM FILE BIOSIS
 D 1-3 IBIB AB HITIND
 D 4-5 IALL

FILE 'HOME' ENTERED AT 10:56:58 ON 20 SEP 2016

FILE 'HCAPLUS' ENTERED AT 10:57:10 ON 20 SEP 2016
 D QUE L39

L104 24 SEA SPE=ON ABB=ON PLU=ON L39 NOT L49

FILE 'WPIX' ENTERED AT 10:57:36 ON 20 SEP 2016
 D QUE L68

L105 14 SEA SPE=ON ABB=ON PLU=ON L68 NOT L74

FILE 'MEDLINE, BIOSIS, CEABA-VTB, COMPENDEX, INSPEC, INSPHYS, EMBASE'
 ENTERED AT 10:57:51 ON 20 SEP 2016

 D QUE L95

L106 24 SEA SPE=ON ABB=ON PLU=ON L95 NOT L102

FILE 'HCAPLUS, WPIX, MEDLINE, BIOSIS, CEABA-VTB, COMPENDEX, INSPEC,
 EMBASE' ENTERED AT 10:58:09 ON 20 SEP 2016

L107 46 DUP REM L104 L105 L106 (16 DUPLICATES REMOVED)
 ANSWERS '1-24' FROM FILE HCAPLUS
 ANSWERS '25-36' FROM FILE WPIX
 ANSWERS '37-38' FROM FILE BIOSIS
 ANSWERS '39-40' FROM FILE CEABA-VTB
 ANSWERS '41-45' FROM FILE COMPENDEX
 ANSWER '46' FROM FILE EMBASE
 D 1-24 IBIB AB HITIND
 D 25-36 IBIB AB
 D 37-46 IALL

FILE 'HOME' ENTERED AT 10:58:36 ON 20 SEP 2016

=>

WEST Search History for Application 14578075

Creation Date: 2017032009:32

Prior Art Searches

Query	DB	Hits	Op.	Plur.	Thes.	Date
(Wax esters) same (Lignocellulose or (Plant biomass) OR (jojoba oil))	PGPB, USPT	1328	ADJ	YES		03-20-2017
Lipase same transesterifi\$16	PGPB, USPT	1889	ADJ	YES		03-20-2017
enzymatic or enzymic or (enzyme mediated)	PGPB, USPT	332830	ADJ	YES		03-20-2017
(enzymatic or enzymic or (enzyme mediated)) same ((Wax esters) same (Lignocellulose or (Plant biomass) OR (jojoba oil)))	PGPB, USPT	5	ADJ	YES		03-20-2017
(enzymatic or enzymic or (enzyme mediated) same (Wax esters) same (Lignocellulose or (Plant biomass) OR (jojoba oil))) same (Lipase same transesterifi\$16)	PGPB, USPT	2	ADJ	YES		03-20-2017
(hydrogenated wax esters) same Jojoba	PGPB, USPT	0	ADJ	YES		03-20-2017
hydrogenated wax esters	PGPB, USPT	3	ADJ	YES		03-20-2017
(hydrogenated wax esters) same ((Wax esters) same (Lignocellulose or (Plant biomass) OR (jojoba oil)))	PGPB, USPT	0	ADJ	YES		03-20-2017
(Lipase same transesterifi\$16) same (enzymatic or enzymic or (enzyme mediated))	PGPB, USPT	527	ADJ	YES		03-20-2017
Jojoba	PGPB, USPT	22158	ADJ	YES		03-20-2017
(Jojoba) same (enzymatic or enzymic or (enzyme mediated))	PGPB, USPT	37	ADJ	YES		03-20-2017
(Jojoba same enzymatic or enzymic or (enzyme mediated)) same (Lipase same transesterifi\$16)	PGPB, USPT	2	ADJ	YES		03-20-2017
(Jojoba same enzymatic or enzymic or (enzyme mediated) same Lipase same transesterifi\$16) Or (enzymatic or enzymic or (enzyme mediated) same (Wax esters) same	PGPB, USPT	2	ADJ	YES		03-20-2017

(Lignocellulose or (Plant biomass) OR (jojoba oil)) same Lipase same transesterifi\$16)						
(Jojoba same enzymatic or enzymic or (enzyme mediated) same Lipase same transesterifi\$16 Or enzymatic or enzymic or (enzyme mediated) same (Wax esters) same (Lignocellulose or (Plant biomass) OR (jojoba oil)) same Lipase same transesterifi\$16) and ((C12P7/6436 C11C3/003).CPC. and (435/134).CCLS. or (C12P7/64).IPCR.)	PGPB, USPT	2	ADJ	YES		03-20-2017
(Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))	USOC, EPAB, JPAB, DWPI, FPRS	22891	ADJ	YES		03-20-2017
Lipase or transesterifi\$16	USOC, EPAB, JPAB, DWPI, FPRS	58231	ADJ	YES		03-20-2017
enzymatic or enzymic or (enzyme mediated)	USOC, EPAB, JPAB, DWPI, FPRS	100267	ADJ	YES		03-20-2017
hydrogenated wax esters	USOC, EPAB, JPAB, DWPI, FPRS	6	ADJ	YES		03-20-2017
Jojoba	USOC, EPAB, JPAB, DWPI, FPRS	7268	ADJ	YES		03-20-2017
((Jojoba) or ((Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)))) or (hydrogenated wax esters)	USOC, EPAB, JPAB, DWPI, FPRS	24581	ADJ	YES		03-20-2017
((Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters) and (Lipase or transesterifi\$16)	USOC, EPAB, JPAB, DWPI, FPRS	336	ADJ	YES		03-20-2017

((Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters) and (enzymatic or enzymic or (enzyme mediated))	USOC, EPAB, JPAB, DWPI, FPRS	1058	ADJ	YES		03-20-2017
((Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated)) and ((Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)))	USOC, EPAB, JPAB, DWPI, FPRS	1048	ADJ	YES		03-20-2017
((Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) and ((Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16)	USOC, EPAB, JPAB, DWPI, FPRS	65	ADJ	YES		03-20-2017
((Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16) and (hydrogenated wax esters)	USOC, EPAB, JPAB, DWPI, FPRS	0	ADJ	YES		03-20-2017
((Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16) and ((Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters)	USOC, EPAB, JPAB, DWPI, FPRS	65	ADJ	YES		03-20-2017
((Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16) and ((Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters)	USOC, EPAB, JPAB, DWPI, FPRS	65	ADJ	YES		03-20-2017

(Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters) and (Lipase or transesterifi\$16)						
("OSI") or ((oxidative stability) and index)	USOC, EPAB, JPAB, DWPI, FPRS	45405	ADJ	YES		03-20-2017
product and (Without and (methyl ester))	USOC, EPAB, JPAB, DWPI, FPRS	6253	ADJ	YES		03-20-2017
(product and (Without and (methyl ester))) and (((Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16) or ((Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16)) or ((Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters))	USOC, EPAB, JPAB, DWPI, FPRS	0	ADJ	YES		03-20-2017

((((Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16) or ((Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16)) or ((Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters))	USOC, EPAB, JPAB, DWPI, FPRS	65	ADJ	YES		03-20-2017
((((Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 or (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and	USOC, EPAB, JPAB, DWPI, FPRS	65	ADJ	YES		03-20-2017

Lipase or transesterifi\$16) or (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters)) and ((Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)))						
(((Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 or (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16) or (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) and ("OSI" or ((oxidative stability) and index))	USOC, EPAB, JPAB, DWPI, FPRS	0	ADJ	YES		03-20-2017
(((Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or	USOC, EPAB, JPAB,	0	ADJ	YES		03-20-2017

enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 or (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16) or (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) and (product and (Without and (methyl ester)))	DWPI, FPRS					
((hydrogenated wax esters) or (((Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 or (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and	USOC, EPAB, JPAB, DWPI, FPRS	65	ADJ	YES		03-20-2017

Lipase or transesterifi\$16) or (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters))) or (((Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 or (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16) or (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)))						
((hydrogenated wax esters) or (((Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or	USOC, EPAB, JPAB, DWPI, FPRS	65	ADJ	YES		03-20-2017

(Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 or (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16) or (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters)) or (((Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 or (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16) or (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and

Lipase or transesterifi\$16 and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)))						
((hydrogenated wax esters or (((Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 or (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 or (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters)) or (((Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 or (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) OR	USOC, EPAB, JPAB, DWPI, FPRS	65	ADJ	YES		03-20-2017

(jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16) or (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) and ((product and (Without and (methyl ester))) or ((Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16))						
((hydrogenated wax esters or (((Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 or (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16) or (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR	USOC, EPAB, JPAB, DWPI, FPRS	65	ADJ	YES		03-20-2017

(jojoba oil))) or hydrogenated wax esters)) or (((Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 or (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16) or (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (product and (Without and (methyl ester)) or (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16)) and ((Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)))						
((hydrogenated wax esters or (((Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 or (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and	USOC, EPAB, JPAB, DWPI, FPRS	6	ADJ	YES		03-20-2017

enzymatic or enzymic or (enzyme mediated)
 and (Wax esters) or (Lignocellulose or (Plant
 biomass) OR (jojoba oil)) and (Jojoba or (Wax
 esters) or (Lignocellulose or (Plant biomass) OR
 (jojoba oil))) or hydrogenated wax esters and
 Lipase or transesterifi\$16 and (Jojoba or (Wax
 esters) or (Lignocellulose or (Plant biomass) OR
 (jojoba oil))) or hydrogenated wax esters and
 Lipase or transesterifi\$16) or (Jojoba or (Wax
 esters) or (Lignocellulose or (Plant biomass) OR
 (jojoba oil))) or hydrogenated wax esters and
 enzymatic or enzymic or (enzyme mediated)
 and (Wax esters) or (Lignocellulose or (Plant
 biomass) OR (jojoba oil)) and (Jojoba or (Wax
 esters) or (Lignocellulose or (Plant biomass) OR
 (jojoba oil))) or hydrogenated wax esters and
 Lipase or transesterifi\$16 and (Jojoba or (Wax
 esters) or (Lignocellulose or (Plant biomass) OR
 (jojoba oil))) or hydrogenated wax esters)) or
 (((Jojoba or (Wax esters) or (Lignocellulose or
 (Plant biomass) OR (jojoba oil))) or
 hydrogenated wax esters and enzymatic or
 enzymic or (enzyme mediated) and (Wax esters)
 or (Lignocellulose or (Plant biomass) OR
 (jojoba oil)) and (Jojoba or (Wax esters) or
 (Lignocellulose or (Plant biomass) OR (jojoba
 oil))) or hydrogenated wax esters and Lipase or
 transesterifi\$16 or (Jojoba or (Wax esters) or
 (Lignocellulose or (Plant biomass) OR (jojoba
 oil))) or hydrogenated wax esters and
 enzymatic or enzymic or (enzyme mediated)
 and (Wax esters) or (Lignocellulose or (Plant
 biomass) OR (jojoba oil)) and (Jojoba or (Wax
 esters) or (Lignocellulose or (Plant biomass) OR
 (jojoba oil))) or hydrogenated wax esters and
 Lipase or transesterifi\$16 and (Jojoba or (Wax
 esters) or (Lignocellulose or (Plant biomass) OR
 (jojoba oil))) or hydrogenated wax esters and
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 esters) or (Lignocellulose or (Plant biomass) OR
 (jojoba oil))) or hydrogenated wax esters and
 enzymatic or enzymic or (enzyme mediated)
 and (Wax esters) or (Lignocellulose or (Plant
 biomass) OR (jojoba oil)) and (Jojoba or (Wax
 esters) or (Lignocellulose or (Plant biomass) OR
 (jojoba oil))) or hydrogenated wax esters and
 Lipase or transesterifi\$16 and (Jojoba or (Wax
 esters) or (Lignocellulose or (Plant biomass) OR
 (jojoba oil))) or hydrogenated wax esters) and
 (Wax esters) or (Lignocellulose or (Plant
 biomass) OR (jojoba oil)) and (product and

(Without and (methyl ester)) or (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) and (Jojoba)						
((hydrogenated wax esters or (((Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 or (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16) or (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters)) or (((Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 or (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax	USOC, EPAB, JPAB, DWPI, FPRS	6	ADJ	YES		03-20-2017

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Search Notes 	Application/Control No. 14578075	Applicant(s)/Patent Under Reexamination ADDY ET AL.
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CPC	C12P7/6436 C11C3/003	3/20/2017	KCS
IPC	C12P7/64)	3/20/2017	KCS
USPC	435/134	3/20/2017	KCS

SEARCH NOTES		
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Inventor name search un PE2E & PALM	3/1/2017	KCS
Assignee name search un PE2E & PALM	3/1/2017	KCS
Verified Application priority data in PE2E & PALM	3/1/2017	KCS
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		14578075 - GAU: 1657	
	Filing Date		2015-01-13	
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Examiner Name	Kailash C. Srivastava
Attorney Docket Number	FloraTech002

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Application Number	14578075 - GAU: 1657
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First Named Inventor	Jeff Addy
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Attorney Docket Number	FloraTech002

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Application Number	14578075 - GAU: 1657
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First Named Inventor	Jeff Addy
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First Named Inventor	Jeff Addy
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Examiner Name	Kailash C. Srivastava
Attorney Docket Number	FloraTech002

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		14578075 - GAU: 1657
	Filing Date		2015-01-13
	First Named Inventor	Jeff Addy	
	Art Unit		
	Examiner Name	Kailash C. Srivastava	
	Attorney Docket Number	FloraTech002	

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	14578075
	Filing Date	2014-12-19
	First Named Inventor	Jeff Addy
	Art Unit	14578075 - GAU: 1657
	Examiner Name	Kailash C. Srivastava
	Attorney Docket Number	Floritech002

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	1	20050176597		2005-08-11	Kodali et al.	
	2	20130185991		2013-07-25	Nishiama et al.	
	3	20130253211		2013-09-26	Allan	

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03/07/2017

Vantage Exhibit 1002

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CARGILL 00000329

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	14578075
Filing Date	2014-12-19
First Named Inventor	Jeff Addy
Art Unit	14578075 - GAU: 1657
Examiner Name	Kailash C. Srivastava
Attorney Docket Number	Floritech002

2	2005/061686	WO	International Flora Technologies, LTD.
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**Courtesy Reminder for
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Attorney Docket No: FloraTech002

Customer Number: 93756

Date of Electronic Notification: 04/26/2017

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CARGILL 00000331

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

AMENDMENT/REPLY

Applicant: Jeff Addy

Docket No: FLORATECH002

Examiner: SRIVASTAVA, KAILASH C

Ser. No: 14578075

Filed: December 19, 2014

Group Art Unit: 1657

Title: Processes and Systems for Catalytic Manufacture of Wax Ester Derivatives

**RESPONSE TO OFFICE ACTION
DATED APRIL 26, 2017**

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir/Madam:

The following is responsive to the Office Action mailed April 26, 2017. Applicant respectfully requests reconsideration of the application in view of the following:

A Listing of the Claims begins on page 2 of this paper.

Remarks/Arguments begin on page 4 of this paper.

An **Appendix** is attached following page 8 of this paper.

CLEAN VERSION OF CURRENT STATUS OF THE CLAIMS

There are no amendments to the following claims, but the claims are provided here to indicate the current status of the claims pending in the application.

1. (Original) A process for transesterifying wax esters, the process comprising:

 providing a feedstock comprising wax esters;

 contacting the feedstock with a lipase;

 catalytically transesterifying the wax esters in the feedstock with the lipase to form a transesterified product;

 wherein an oxidative stability index (OSI) of the transesterified product is greater than an OSI of the feedstock.
2. (Original) The process of claim 1, wherein the transesterified product comprises no methyl esters.
3. (Original) The process of claim 1, wherein the feedstock further comprises an antioxidant and catalytically transesterifying the wax esters in the feedstock with the lipase further comprises catalytically transesterifying without one of removing and degrading the antioxidant in the feedstock.
4. (Original) The process of claim 3, wherein the feedstock further comprises a skin conditioning agent and a volatile compound and catalytically transesterifying the wax esters in

the feedstock with the lipase further comprises catalytically transesterifying without one of removing and degrading the skin conditioning agent and the volatile compound in the feedstock.

5. (Original) The process of claim 1, wherein the wax esters of the feedstock are jojoba wax esters.

6. (Original) The process of claim 5, wherein the jojoba wax esters further comprise hydrogenated jojoba wax esters.

7. (Original) The process of claim 6, wherein a dropping point of the transesterified product is greater than a dropping point of the feedstock and the dropping point of the transesterified product increases as a percentage of hydrogenated jojoba wax esters in the feedstock increases.

8-20. (Canceled).

REMARKS

Claims 1-7 are currently pending in the application. Applicant requests reconsideration of the application in light of the following remarks.

Information Disclosure Statement

The Examiner has raised issues with the IDS's submitted 1/13/2015. Applicant has added page numbers to the references the Examiner lined through. Applicant has included an author if the author is known. If the author is not known, Applicant has disclosed all other known identifying information along with the actual article. Applicant also notes that in IDS002-1, NPL number 42 has been separated into two different entries on the revised IDS002A, both of which are reflected in entry NPL number 39 and NPL number 40 in the revised IDS. This was done to separate two journal articles that were originally incorrectly submitted together when originally filed. However, both articles were previously submitted, so Applicant is submitting no new references with the revised IDSs. Applicant respectfully requests that the Examiner consider the revised references in the revised IDSs submitted herewith.

Rejections under 35 U.S.C. 103

Claims 1-7 were rejected under 35 U.S.C. 103(a) as being unpatentable over Compton (Int. Pat. Pub. No. WO200172683, hereinafter "Compton"), in light of Kodali (U.S. Patent App. Pub. No. 20050176597, hereinafter "Kodali") and Brown (Int. Pat. Pub. No. WO200506186, hereinafter "Brown"). Applicant respectfully traverses this rejection and requests reconsideration of the claims.

Referring to the legal standards set forth in Appendix A, Applicant observes that the Examiner has not explicitly stated which of the obviousness rationales endorsed in *KSR International Co. v. Teleflex Inc.* 550 U.S. 398, 127 S.Ct. 1727, 167 L.Ed.2d 705 (2007) are being used. The Applicant believes the rationale being used is A, B, and/or C:

“(A) Combining prior art elements according to known methods to yield predictable results;

(B) Simple substitution of one known element for another to obtain predictable results;

(C) Use of known technique to improve similar devices (methods, or products) in the same way;

(D) Applying a known technique to a known device (method, or product) ready for improvement to yield predictable results;

(E) “Obvious to try”-choosing from a finite number of identified, predictable solutions, with a reasonable expectation of success;

(F) Known work in one field of endeavor may prompt variations of it for use in either the same field or a different one based on design incentives or other market forces if the variations are predictable to one of ordinary skill in the art;

(G) Some teaching, suggestion, or motivation in the prior art that would have led one of ordinary skill to modify the prior art reference or to combine prior art reference teachings to arrive at the claimed invention.” MPEP § 2141(II), (III) and 72 Federal Register 57527 (October 10, 2007).

Independent Claim 1

Claim 1 was rejected under 35 U.S.C. 103(a) as being unpatentable over Compton in view of Kodali and Brown. In making the 103(a) rejection of claim 1 the Examiner acknowledges that Compton fails to disclose anything about the oxidative stability index (OSI) of the transesterified product being greater than the OSI of the feedstock. To remedy this, the Examiner relies on Kodali and argues on p. 6 of the 4/26/17 OA, that Kodali discloses “an oxidative stability index of the transesterified product is greater than an OSI of the feedstock.” In relying on the Kodali reference, the Examiner fails to appreciate that the Kodali reference discloses only chemically catalyzed transesterification. As explained in Applicant’s specification, chemically catalyzed transesterification is far different from enzymatic transesterification, which Applicant’s claims are directed too. Because of this, the combination of Compton and Kodali still fails to teach an **enzymatically** transesterified product with an OSI that is greater than the OSI of the feedstock as the teachings of Kodali is only relevant to chemically transesterified products.

To further explain, Applicant has observed that chemically catalyzed transesterification can be problematic as it results in the transesterified product having a lower OSI than the original product. This is because tocopherols and other antioxidants of the reactant which act to raise the OSI are removed or degraded by the chemical catalyst—see at least para. [0049] of Applicant’s specification.

Kodali teaches a solution to this problem far different from what is disclosed by Applicant. To compensate for the decreased OSI, which Kodali confirms exists in Kodali’s chemically catalyzed transesterified product, Kodali merely discloses adding additional antioxidants to the finished transesterified product to raise the antioxidant level to that present in the original feedstock materials. Kodali then observes that the transesterified product after having the antioxidants added can have a higher OSI than the starting product (which is vegetable oil) with antioxidants added. Kodali gives various reasons for why its chemically catalyzed product, with the antioxidants added to it post reaction, shows a higher OSI in the final sentence in para. [0005]—“Transesterifying various short saturated fatty acid esters with a vegetable oil improves oxidative stability and low temperature properties due to the increased saturation and the heterogeneity of the fatty acids esterified to the polyols.” Because Kodali explicitly teaches that the feed materials into the chemically catalyzed transesterification reaction are polyols, Kodali relies on the fact that a randomization will occur of which fatty acids wind up at each position on the polyols following the transesterification reaction to increase the saturation and heterogeneity of the final product. In this way, Kodali teaches that the use of a polyol is needed to create the OSI effect observed.

Completely contrary to Kodali’s teachings involving chemically catalyzed transesterification, Applicant’s claims are directed towards enzymatic transesterification, which surprisingly results in the enzymatically transesterified product having a greater OSI than the feedstock without the addition of any antioxidants to the final reacted material, see at least para. [0056] of Applicant’s application. This is a completely unexpected result. Not only did the OSI not decrease (as one might expect by preserving the natural tocopherols), the OSI unexpectedly increased.

Because Applicant claims a process of enzymatically transesterifying a feedstock which unexpectedly results in a transesterified product having a higher OSI than the feedstock, claim 1 is not obvious in view of the combination of Compton and Kodali, which discloses raising the OSI of chemically transesterified product only by adding antioxidants to the end product and using polyols. Applicant respectfully requests that the obviousness rejection of claim 1 be withdrawn.

Dependent Claims 2-7

Dependent claims 2-7 are allowable for, among other reasons, depending from allowable claim 1.

Specifically, claims 5-7 are directed towards use of jojoba wax esters as the feedstock. The use of jojoba oil as a feedstock unexpectedly increases the OSI of the enzymatically transesterified product to a level significantly higher than the OSI of the feedstock. The physical properties of jojoba oil, such as its long carbon chain, plays a role in the increase in OSI, as explained in at least para. [0072] of Applicant's application. On the other hand, the reactants used in Kodali are short chain fatty acid esters and triacylglycerol (a polyol) including vegetable oil. The structure of the reactants in Kodali is critical to obtaining the increase in OSI, as is adding antioxidants to the final transesterified product as disclosed in Kodali.

On page 7 of the OA, the Examiner argues that a person would have supplemented the process of Compton with the teachings of Kodali and Brown to obtain a process with an improved esterification process that improves the OSI. This is incorrect. Based on the teachings of Kodali, in order to raise the OSI, a chemical transesterification process has to take place with specific reactants, i.e. a **short chain fatty acid and triacylglycerol and then the antioxidants destroyed by the chemically catalyzed reaction need to be added back to the finished product.** Because Kodali teaches that the specific reactants result in the increase in OSI, one of ordinary skill would be lead away from using the process of Kodali to increase the OSI of jojoba oil. Indeed, Kodali teaches away from Compton and Brown as it teaches away

from using jojoba oil, which does not contain polyols, as a reactant. Because of this, the obviousness rejections of claims 5-7 are in error.

Applicant respectfully requests that the obviousness rejections of claims 2-7 be withdrawn.

Regarding Doctrine of Equivalents

Applicant hereby declares that any amendments herein that are not specifically made for the purpose of patentability are made for other purposes, such as clarification, and that no such changes shall be construed as limiting the scope of the claims or the application of the Doctrine of Equivalents.

CONCLUSION

Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Respectfully submitted,

Date: 7/21/2017

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Appendix A:

Legal Standard for Finding Obviousness under 35 U.S.C. 103

The most recent guidelines published by the USPTO regarding the implementation of the Supreme Court's decision in *KSR International Co. v. Teleflex Inc.* 550 U.S. 398, 127 S.Ct. 1727, 167 L.Ed.2d 705 (2007) state that:

An invention that would have been obvious to a person of ordinary skill at the time of the invention is not patentable. See 35 U.S.C. 103(a). As reiterated by the Supreme Court in *KSR*, the framework for the objective analysis for determining obviousness under 35 U.S.C. 103 is stated in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966). Obviousness is a question of law based on underlying factual inquiries. The factual inquiries enunciated by the Court are as follows:

- (A) Determining the scope and content of the prior art;
- (B) Ascertaining the differences between the claimed invention and the prior art; and
- (C) Resolving the level of ordinary skill in the pertinent art...

Office personnel fulfill the critical role of fact-finder when resolving the *Graham* inquiries... When making an obviousness rejection, Office personnel must therefore ensure that the written record includes findings of fact concerning the state of the art and the teachings of the references applied. In certain circumstances, it may also be important to include explicit findings as to how a person of ordinary skill would have understood prior art teachings, or what a person of ordinary skill would have known or could have done. Factual findings made by Office personnel are the necessary underpinnings to establish obviousness...

In short, the focus when making a determination of obviousness should be on what a person of ordinary skill in the pertinent art would have known at the time of the invention, and on what such a person should reasonably have been able to do in view of that knowledge. This is so regardless of whether the source of that knowledge and ability was documentary prior art, general knowledge in the art, or common sense...

The key to supporting any rejection under 35 U.S.C. 103 is the clear articulation of the reason(s) why the claimed invention would have been obvious. The Supreme Court in *KSR* noted that the analysis supporting a rejection under 35 U.S.C. 103 should be made explicit. The Court quoting *In re Kahn*, 441 F.3d 977, 988, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006) stated

that “[R]ejections on obviousness cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.”
KSR... Exemplary rationales that may support a conclusion of obviousness include:

(A) Combining prior art elements according to known methods to yield predictable results;

(B) Simple substitution of one known element for another to obtain predictable results;

(C) Use of known technique to improve similar devices (methods, or products) in the same way;

(D) Applying a known technique to a known device (method, or product) ready for improvement to yield predictable results;

(E) “Obvious to try”-choosing from a finite number of identified, predictable solutions, with a reasonable expectation of success;

(F) Known work in one field of endeavor may prompt variations of it for use in either the same field or a different one based on design incentives or other market forces if the variations are predictable to one of ordinary skill in the art;

(G) Some teaching, suggestion, or motivation in the prior art that would have led one of ordinary skill to modify the prior art reference or to combine prior art reference teachings to arrive at the claimed invention. MPEP § 2141(II), (III) and 72 Federal Register 57527 (October 10, 2007).

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	Filing Date	2015-01-13
	First Named Inventor	Jeff Addy
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	Examiner Name	
	Attorney Docket Number	FloraTech002

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	2	8349594		2013-01-08	Pearce et al.	

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(Not for submission under 37 CFR 1.99)

Application Number		
Filing Date		2015-01-13
First Named Inventor	Jeff Addy	
Art Unit		
Examiner Name		
Attorney Docket Number	FloraTech002	

33	Andrea Salis et al., "Wax esters synthesis from heavy fraction of sheep milk fat and cetyl alcohol by immobilised lipases," Journal of Molecular Catalysis B: Enzymatic 21, 167-174 (2003)
34	"Oils & Fats - Oil recovery from gums with Novozymes Lecitase Ultra," Novozymes A/S (2007), p. 1-4.
35	"Determination of lipase/esterase activity, titration by the pH-stat method (KLU, LU-MM, LU-CA, KLU(LPAX), and KLU (LEX)," Novozymes A/S (2010), p. 1-10.
36	"Food specialties - Novozymes Lecitase Ultra," Novozymes Switzerland AG (2002), p. 1-3.
37	"Oils & Fats - Refining of vegetable oils - Improving the degumming yield," Novozymes A/S (2004), p. 1-5
38	"Immobilized lipase activity based on ester synthesis (Propyl Laurate Units, PLU)," Novozymes A/S (2011), p. 1-5.
39	Lori Gregg, Lipozyme CalB L, A lipase preparation produced by <i>Aspergillus niger</i> expressing a gene encoding a lipase from <i>Candida antarctica</i> , Novozymes, Oct. 2004, p. 1-20.
40	Ditte Sidelmann Brinch, et. al., "Summary of Toxicity Data, Candida B Lipase," Novozymes, p. 3-9.
41	"Biocatalysis - Enzymes for organic synthesis," Novozymes A/S (2004), p. 1-3
42	Nevena Lukovic et al., "Biodiesel Fuel Production by Enzymatic Transesterification of Oils: Recent Trends, Challenges and Future Perspectives," Dr. Maximino Manzanera (Ed.), ISBN: 978-953-307-372-9, InTech (2011), p. 47-65.
43	W.D. Cowan et al., "The Influence of lipase type and fat origin on Enzymatic Interesterification," Novozymes A/S (2008), p. 1-18.

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Application Number		
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Examiner Name		
Attorney Docket Number	FloraTech002	

44	Kathryn D. Lardizabal et al., "Purification of a Jojoba Embryo Wax Synthase, Cloning of its cDNA, and Production of High Levels of Wax in Seeds of Transgenic Arabigopsis," Plant Physiology, Vol. 122, pp. 645-655 (2000)
45	Thomas K. Miwa, "Structural Determination and Uses of Jojoba Oil," J. Amer. Oil Chem. Soc., Vol. 61, No. 2, p. 407-410 (February 1984)
46	David J. Sessa, "Derivation of a Cocoa Butter Equivalent from Jojoba Transesterified Ester via a Differential Scanning Calorimetry Index," J. Sci. Food Agric., v. 72, p. 295-298 (1996)

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Application Number	
Filing Date	2015-01-13
First Named Inventor	Jeff Addy
Art Unit	
Examiner Name	
Attorney Docket Number	FloraTech002

CERTIFICATION STATEMENT

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

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☐ 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.

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☒ 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	/Adam R. Stephenson/	Date (YYYY-MM-DD)	2017-07-21
Name/Print	Adam R. Stephenson	Registration Number	58349

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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.
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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.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	
	Filing Date	2015-01-13
	First Named Inventor	Jeff Addy
	Art Unit	
	Examiner Name	
	Attorney Docket Number	FloraTech002

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
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	2	4360387		1982-11-23	Brown et al.	

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**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
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Application Number		
Filing Date		2015-01-13
First Named Inventor	Jeff Addy	
Art Unit		
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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	Sessa et al., "Differential Scanning Calorimetry Index for Estimating Level of Saturation in Transesterified Wax Esters," J. Amer. Oil Chem. Soc., v. 73, 271-273 (1996)	
	2	James Brown et al., "Trans Isomers in Cosmetics," Part 2, Soap & Cosmetics, May 2001, p. 33-36, and June 2001	
	3	James Brown et al., "Trans Isomers in Cosmetics," Soap & Cosmetics, May and June 2001, p. 1-4	
	4	Patrick Cappillino et al., "Composition of Chilean Jojoba Seed," presentation given at the 5th New Crops Symposium in Atlanta, GA Nov. 10-13, 2001, slides 1-19.	
	5	Patrick Cappillino et al., "Composition of Chilean Jojoba Seeds," Ind. Crops and Prod., v. 17, p. 177-182 (2003)	
	6	Avery Sengupta et al., "Comparative Study of Sterol Ester Synthesis using Termomyces Lanuginosus Lipase in Stirred Tank and Packed-Bed Bioreactors," J. Am Oil Chem Soc, Vol. 87, p. 1019-1025 (2010)	
	7	Jose A. Arcos et al., "Continuous Enzymatic Esterification of Glycerol with (Poly)Unsaturated Fatty Acids in a Packed-Bed Reactor," Biotechnology and Bioengineering, Vol. 68, No. 5, p. 563-570 (June 5, 2000)	
	8	Aran H-Kittikun et al., "Continuous production of monoacylglycerols from palm olein in packed-bed reactor with immobilized lipase PS," Biochemical Engineering Journal 40, p. 116-120 (2008)	
	9	Anders Falk Vikbjerg et al., "Continuous Production of Structured Phospholipids in a Packed Bed Reactor with Lipase from Thermomyces lanuginosa," AOCS, Vo. 82, No. 4 (2005)	
	10	Sarah M. Meunier, "Development of a Packed-bed Reactor Containing Supported Sol-gel Immobilized Lipase for Transesterification," A thesis presented to the Univ. of Waterloo (2012)	

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11	Roberta Claro da Silva et al., "Interesterification of Lard and Soybean Oil Blends Catalyzed by Immobilized Lipase in a Continuous Packed Bed Reactor," J. Am. Oil Chem. Soc., Vol. 88, p. 1925-1933 (2011)
12	Roberta Claro da Silva et al., "Microstructure and Thermal Profile of Structured Lipids Produced by Continuous Enzymatic Interesterification," J. Am. Oil Chem. Soc., Vol. 90, p. 631-639 (2013)
13	Ozmutlu et al., "Numerical Simulation of Fluid Flow and Enzyme Catalysed Substrate Conversion in a Packed-bed Enzyme Reactor," Proc. Appl. Math. Mech. 3, p. 398-399 (2003)
14	X. Xu et al., "Production of Specific-Structured Lipids by Enzymatic Interesterification in a Pilot Continuous Enzyme Bed Reactor," AOCS, Vol. 75, No. 11 (1998)
15	Xuebing Xu et al., "Production of Structured Lipids in a Packed-Bed Reactor with Thermomyces lanuginosa Lipase," AOCS, Vol. 79, No. 6 (2002)
16	Design of Ideal Plug Flow Reactors (PFRs) operated at Steady State under Isothermal Conditions," CP303, Set #4 (July-October 2013)
17	"Fixed-Bed Catalytic Reactors," Copyright 2011 by Nob Hill Publishing, LLC
18	Neha R. Sonare et al., "Transesterification of used sunflower oil using immobilized enzyme," Journal of Molecular Catalysis B: Enzymatic 66, p. 142-147 (2010)

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EXAMINER SIGNATURE

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Signature	/Adam R. Stephenson/	Date (YYYY-MM-DD)	2017-07-21
Name/Print	Adam R. Stephenson	Registration Number	58349

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Electronic Acknowledgement Receipt

EFS ID:	29860126
Application Number:	14578075
International Application Number:	
Confirmation Number:	2053
Title of Invention:	Processes and Systems for Catalytic Manufacture of Wax Ester Derivatives
First Named Inventor/Applicant Name:	Jeff Addy
Customer Number:	93756
Filer:	Adam Reid Stephenson/Dee Wilson
Filer Authorized By:	Adam Reid Stephenson
Attorney Docket Number:	FloraTech002
Receipt Date:	21-JUL-2017
Filing Date:	19-DEC-2014
Time Stamp:	17:24:24
Application Type:	Utility under 35 USC 111(a)

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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Amendment Copy Claims/Response to Suggested Claims	OAR1.pdf	152240	no	11
			544fa95b11ee20a4b4a2ddf6eab03ad35c079258		

Warnings:

Vantage Exhibit 1002

Page 331 of 1215

CARGILL 00000356

Information:					
2	Information Disclosure Statement (IDS) Form (SB08)	RevisedIDS002A.pdf	615809	no	8
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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), (l), 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(j))	minus 20 =	*	X \$ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X \$ =	
☐ 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	07/21/2017	CLAIMS REMAINING AFTER AMENDMENT	MINUS	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)
	Total (37 CFR 1.16(i))	* 7	Minus	** 20	= 0	X \$40 =	0
	Independent (37 CFR 1.16(h))	* 1	Minus	*** 3	= 0	X \$210 =	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	MINUS	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)
	Total (37 CFR 1.16(i))	*	Minus	**	=	X \$ =
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X \$ =
	☐ 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.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".

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Vantage Exhibit 1002

Page 333 of 1215

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Doc Code: ECOMM.AUTH/ECOMM.WTDW

Doc Description: Internet Communications Authorized/Internet Communications Authorization Withdrawn

PTO/SB/439 (11-15)

**AUTHORIZATION FOR INTERNET
COMMUNICATIONS IN A PATENT
APPLICATION OR REQUEST TO
WITHDRAW AUTHORIZATION FOR
INTERNET COMMUNICATIONS**

Application No.	14578075
Filing Date	12/19/2014
First Named Inventor	Jeff Addy
Art Unit	1657
Examiner Name	SRIVASTAVA, KAILASH C
Practitioner Docket No.	FLORATECH002

To: Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

I. To authorize permission for Internet Communications.

☒ Recognizing that Internet communications are not secure, I hereby authorize the USPTO to communicate with the undersigned and practitioners in accordance with 37 CFR 1.33 and 37 CFR 1.34 concerning any subject matter of this application via video conferencing, instant messaging, or electronic mail. I understand that a copy of these communications will be made of record in the application file. (MPEP 502.03)

II. To withdraw authorization for Internet Communications.

☐ The authorization given on _____, to the USPTO to communicate with the undersigned and any practitioner in accordance with 37 CFR 1.33 and 37 CFR 1.34 concerning any subject matter of this application via Internet communications such as video conferencing, instant messaging, or electronic mail is hereby withdrawn. I understand that the withdrawal is effective when approved rather than when received.

I am the

☐ applicant.

☒ attorney or agent of record. Registration number 58349.

☐ attorney or agent acting under 37 CFR 1.34. Registration number _____.

/Adam Stephenson/
Signature

10/20/2017
Date

Adam R. Stephenson
Typed or printed name

480.264.6075
Telephone Number

NOTE: This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. Juristic entities must be represented by a patent practitioner (see 37 CFR 1.31, which is applicable to any paper filed on or after September 16, 2012, that is presented on behalf of a juristic entity, regardless of application filing date). Submit multiple forms if more than one signature is required, see below*.

☐ * Total of _____ forms are submitted.

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.

Electronic Acknowledgement Receipt

EFS ID:	30721365
Application Number:	14578075
International Application Number:	
Confirmation Number:	2053
Title of Invention:	Processes and Systems for Catalytic Manufacture of Wax Ester Derivatives
First Named Inventor/Applicant Name:	Jeff Addy
Customer Number:	93756
Filer:	Adam Reid Stephenson/Dee Wilson
Filer Authorized By:	Adam Reid Stephenson
Attorney Docket Number:	FloraTech002
Receipt Date:	20-OCT-2017
Filing Date:	19-DEC-2014
Time Stamp:	18:34:19
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Internet Communications Authorized	sb0439.pdf	99144	no	2
			4a5bd7465e04945550e9fd3f4cd4367871878227		

Warnings:

Vantage Exhibit 1002

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CARGILL 00000361

Information:	
Total Files Size (in bytes):	99144
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. <u>New Applications Under 35 U.S.C. 111</u> 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. <u>National Stage of an International Application under 35 U.S.C. 371</u> 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. <u>New International Application Filed with the USPTO as a Receiving Office</u> 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.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)

Application Number	14578075
Filing Date	2014-12-19
First Named Inventor	Jeff Addy
Art Unit	14578075 - GAU: 1657
Examiner Name	Kailash C. Srivastava
Attorney Docket Number	Floritech002

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	20050176597		2005-08-11	Kodali et al.	
	2	20130185991		2013-07-25	Nishiama et al.	
	3	20130253211		2013-09-26	Allan	

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	2001/072683	WO			The United States of America		

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /K.C.S/

/KAILASH C SRIVASTAVA/

03/07/2017

Vantage Exhibit 1002

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CARGILL 00000363

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	14578075
Filing Date	2014-12-19
First Named Inventor	Jeff Addy
Art Unit	14578075 - GAU: 1657
Examiner Name	Kailash C. Srivastava
Attorney Docket Number	Floratech002

2	2005/061686	WO	International Flora Technologies, LTD.
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If you wish to add additional Foreign Patent Document citation information please click the Add button

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
	1		

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

EXAMINER SIGNATURE

Examiner Signature	/KAILASH C SRIVASTAVA/	Date Considered	03/08/2017
--------------------	------------------------	-----------------	------------

*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. /K.C.S/

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	14578075
Filing Date	2014-12-19
First Named Inventor	Jeff Addy
Art Unit	14578075 - GAU: 1657
Examiner Name	KAILASH C. Srivastava
Attorney Docket Number	Floratech002

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	/Adam Stephenson/	Date (YYYY-MM-DD)	2016-05-23
Name/Print	Adam R. Stephenson	Registration Number	58349

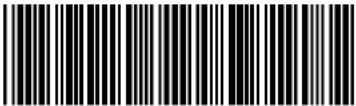
This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 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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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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Search Notes 	Application/Control No. 14/578,075	Applicant(s)/Patent Under Reexamination Addy et al.
	Examiner KAILASH C SRIVASTAVA	Art Unit 1657

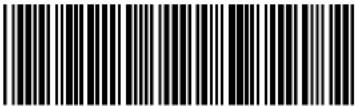
CPC - Searched*		
Symbol	Date	Examiner
Please see Partial text search in WEST appended hereto	3/20/2017	KCS
Please see Partial text search in WEST appended hereto	10/19/2017	KCS

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner
Partial text search in WEST	Partial text search in WEST	3/20/2017	KCS
CPC	C12P7/6436 C11C3/003	3/20/2017	KCS
IPC	C12P7/64)	3/20/2017	KCS
USPC	435/134	3/20/2017	KCS
Updated Partial text search in WEST	Updated Partial text search in WEST	10/19/2017	KCS
CPC	C12P7/6436, C11C3/003	10/19/2017	KCS
IPC	C12P7/64	10/19/2017	KCS
USPC	435/134	10/19/2017	KCS

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

	/KAILASH C SRIVASTAVA/ Examiner.Art Unit 1657 Vantage Exhibit 1002 Part of Paper No.: 20171113 Page 342 of 1215 CARGILL 00000367
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Search Notes 	Application/Control No. 14/578,075	Applicant(s)/Patent Under Reexamination Addy et al.
	Examiner KAILASH C SRIVASTAVA	Art Unit 1657

Search Notes		
Search Notes	Date	Examiner
Inventor name search in PE2E & PALMsearch in	3/1/2017	KCS
Assignee name search in PE2E & PALM	3/1/2017	KCS
Verified Application priority data in PE2E & PALM	3/1/2017	KCS
Partial Text Search in WEST:DWPI, EPAB, FPRS, JPAB, USOC, USPT according to search stratgy and terms in WEST search history appende hereto	3/20/2017	KCS
STN Search	09/20/2016	KCS
Updated Inventor name search in PE2E, WEST & PALM	10/19/2017	
Updated Assignee name search in PE2E & PALM	10/19/2017	
Reverified Application priority data in PE2E & PALM	10/19/2017	
Updated Partial Text Search in WEST:DWPI, EPAB, FPRS, JPAB, USOC, USPT according to search stratgy and terms in WEST search history appende hereto	10/19/2017	
14578075 Google Search Transesterification oil OI20171019	10/19/2017	

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

	/KAILASH C SRIVASTAVA/ Examiner.Art Unit 1657 Vantage Exhibit 1002
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WEST Search History for Application 14578075

Creation Date: 2017101913:18

Prior Art Searches

Query	DB	Hits	Op.	Plur.	Thes.	Date
(Wax esters) same (Lignocellulose or (Plant biomass) OR (jojoba oil))	PGPB, USPT	1328	ADJ	YES		03-20-2017
Lipase same transesterifi\$16	PGPB, USPT	1889	ADJ	YES		03-20-2017
enzymatic or enzymic or (enzyme mediated)	PGPB, USPT	332830	ADJ	YES		03-20-2017
(enzymatic or enzymic or (enzyme mediated)) same ((Wax esters) same (Lignocellulose or (Plant biomass) OR (jojoba oil)))	PGPB, USPT	5	ADJ	YES		03-20-2017
(enzymatic or enzymic or (enzyme mediated)) same (Wax esters) same (Lignocellulose or (Plant biomass) OR (jojoba oil))) same (Lipase same transesterifi\$16)	PGPB, USPT	2	ADJ	YES		03-20-2017
(hydrogenated wax esters) same Jojoba	PGPB, USPT	0	ADJ	YES		03-20-2017
hydrogenated wax esters	PGPB, USPT	3	ADJ	YES		03-20-2017
(hydrogenated wax esters) same ((Wax esters) same (Lignocellulose or (Plant biomass) OR (jojoba oil)))	PGPB, USPT	0	ADJ	YES		03-20-2017
(Lipase same transesterifi\$16) same (enzymatic or enzymic or (enzyme mediated))	PGPB, USPT	527	ADJ	YES		03-20-2017
Jojoba	PGPB, USPT	22158	ADJ	YES		03-20-2017
(Jojoba) same (enzymatic or enzymic or (enzyme mediated))	PGPB, USPT	37	ADJ	YES		03-20-2017
(Jojoba same enzymatic or enzymic or (enzyme mediated)) same (Lipase same transesterifi\$16)	PGPB, USPT	2	ADJ	YES		03-20-2017
(Jojoba same enzymatic or enzymic or (enzyme mediated)) same Lipase same transesterifi\$16) Or (enzymatic or enzymic or (enzyme mediated)) same (Wax esters) same	PGPB, USPT	2	ADJ	YES		03-20-2017

(Lignocellulose or (Plant biomass) OR (jojoba oil)) same Lipase same transesterifi\$16)						
(Jojoba same enzymatic or enzymic or (enzyme mediated) same Lipase same transesterifi\$16 Or enzymatic or enzymic or (enzyme mediated) same (Wax esters) same (Lignocellulose or (Plant biomass) OR (jojoba oil)) same Lipase same transesterifi\$16) and ((C12P7/6436 C11C3/003).CPC. and (435/134).CCLS. or (C12P7/64).IPCR.)	PGPB, USPT	2	ADJ	YES		03-20-2017
(Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))	USOC, EPAB, JPAB, DWPI, FPRS	22891	ADJ	YES		03-20-2017
Lipase or transesterifi\$16	USOC, EPAB, JPAB, DWPI, FPRS	58231	ADJ	YES		03-20-2017
enzymatic or enzymic or (enzyme mediated)	USOC, EPAB, JPAB, DWPI, FPRS	100267	ADJ	YES		03-20-2017
hydrogenated wax esters	USOC, EPAB, JPAB, DWPI, FPRS	6	ADJ	YES		03-20-2017
Jojoba	USOC, EPAB, JPAB, DWPI, FPRS	7268	ADJ	YES		03-20-2017
((Jojoba) or ((Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)))) or (hydrogenated wax esters)	USOC, EPAB, JPAB, DWPI, FPRS	24581	ADJ	YES		03-20-2017
((Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters) and (Lipase or transesterifi\$16)	USOC, EPAB, JPAB, DWPI, FPRS	336	ADJ	YES		03-20-2017

((Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters) and (enzymatic or enzymic or (enzyme mediated))	USOC, EPAB, JPAB, DWPI, FPRS	1058	ADJ	YES		03-20-2017
((Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated)) and ((Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)))	USOC, EPAB, JPAB, DWPI, FPRS	1048	ADJ	YES		03-20-2017
((Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) and ((Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16)	USOC, EPAB, JPAB, DWPI, FPRS	65	ADJ	YES		03-20-2017
((Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16) and (hydrogenated wax esters)	USOC, EPAB, JPAB, DWPI, FPRS	0	ADJ	YES		03-20-2017
((Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16) and ((Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters)	USOC, EPAB, JPAB, DWPI, FPRS	65	ADJ	YES		03-20-2017
((Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16) and ((Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters)	USOC, EPAB, JPAB, DWPI, FPRS	65	ADJ	YES		03-20-2017

(Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters) and (Lipase or transesterifi\$16)						
("OSI") or ((oxidative stability) and index)	USOC, EPAB, JPAB, DWPI, FPRS	45405	ADJ	YES		03-20-2017
product and (Without and (methyl ester))	USOC, EPAB, JPAB, DWPI, FPRS	6253	ADJ	YES		03-20-2017
(product and (Without and (methyl ester))) and (((Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16) or ((Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16)) or ((Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters))	USOC, EPAB, JPAB, DWPI, FPRS	0	ADJ	YES		03-20-2017

((((Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16) or ((Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16)) or ((Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters))	USOC, EPAB, JPAB, DWPI, FPRS	65	ADJ	YES		03-20-2017
((((Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 or (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and	USOC, EPAB, JPAB, DWPI, FPRS	65	ADJ	YES		03-20-2017

Lipase or transesterifi\$16) or (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters)) and ((Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)))						
(((Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 or (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16) or (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) and (('OSI') or ((oxidative stability) and index))	USOC, EPAB, JPAB, DWPI, FPRS	0	ADJ	YES		03-20-2017
(((Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or	USOC, EPAB, JPAB,	0	ADJ	YES		03-20-2017

enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 or (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16) or (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) and (product and (Without and (methyl ester))))	DWPL, FPRS					
((hydrogenated wax esters) or (((Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)))) or hydrogenated wax esters and Lipase or transesterifi\$16 or (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and	USOC, EPAB, JPAB, DWPL, FPRS	65	ADJ	YES		03-20-2017

Lipase or transesterifi\$16) or (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters))) or (((Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 or (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16) or (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)))						
((hydrogenated wax esters) or (((Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or	USOC, EPAB, JPAB, DWPI, FPRS	65	ADJ	YES		03-20-2017

(Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 or (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16) or (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters)) or (((Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 or (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16) or (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and

Lipase or transesterifi\$16 and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)))						
((hydrogenated wax esters or (((Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 or (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16) or (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters)) or (((Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 or (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))	USOC, EPAB, JPAB, DWPL, FPRS	65	ADJ	YES		03-20-2017

(jojoba oil))) or hydrogenated wax esters)) or (((Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 or (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16) or (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (product and (Without and (methyl ester)) or (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16) and ((Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)))						
((hydrogenated wax esters or (((Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 or (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and	USOC, EPAB, JPAB, DWPI, FPRS	6	ADJ	YES		03-20-2017

enzymatic or enzymic or (enzyme mediated)
 and (Wax esters) or (Lignocellulose or (Plant
 biomass) OR (jojoba oil)) and (Jojoba or (Wax
 esters) or (Lignocellulose or (Plant biomass) OR
 (jojoba oil))) or hydrogenated wax esters and
 Lipase or transesterifi\$16 and (Jojoba or (Wax
 esters) or (Lignocellulose or (Plant biomass) OR
 (jojoba oil))) or hydrogenated wax esters and
 Lipase or transesterifi\$16) or (Jojoba or (Wax
 esters) or (Lignocellulose or (Plant biomass) OR
 (jojoba oil))) or hydrogenated wax esters and
 enzymatic or enzymic or (enzyme mediated)
 and (Wax esters) or (Lignocellulose or (Plant
 biomass) OR (jojoba oil)) and (Jojoba or (Wax
 esters) or (Lignocellulose or (Plant biomass) OR
 (jojoba oil))) or hydrogenated wax esters and
 Lipase or transesterifi\$16 and (Jojoba or (Wax
 esters) or (Lignocellulose or (Plant biomass) OR
 (jojoba oil))) or hydrogenated wax esters)) or
 (((Jojoba or (Wax esters) or (Lignocellulose or
 (Plant biomass) OR (jojoba oil))) or
 hydrogenated wax esters and enzymatic or
 enzymic or (enzyme mediated) and (Wax esters)
 or (Lignocellulose or (Plant biomass) OR
 (jojoba oil)) and (Jojoba or (Wax esters) or
 (Lignocellulose or (Plant biomass) OR (jojoba
 oil))) or hydrogenated wax esters and Lipase or
 transesterifi\$16 or (Jojoba or (Wax esters) or
 (Lignocellulose or (Plant biomass) OR (jojoba
 oil))) or hydrogenated wax esters and
 enzymatic or enzymic or (enzyme mediated)
 and (Wax esters) or (Lignocellulose or (Plant
 biomass) OR (jojoba oil)) and (Jojoba or (Wax
 esters) or (Lignocellulose or (Plant biomass) OR
 (jojoba oil))) or hydrogenated wax esters and
 Lipase or transesterifi\$16 and (Jojoba or (Wax
 esters) or (Lignocellulose or (Plant biomass) OR
 (jojoba oil))) or hydrogenated wax esters and
 Lipase or transesterifi\$16) or (Jojoba or (Wax
 esters) or (Lignocellulose or (Plant biomass) OR
 (jojoba oil))) or hydrogenated wax esters and
 enzymatic or enzymic or (enzyme mediated)
 and (Wax esters) or (Lignocellulose or (Plant
 biomass) OR (jojoba oil)) and (Jojoba or (Wax
 esters) or (Lignocellulose or (Plant biomass) OR
 (jojoba oil))) or hydrogenated wax esters and
 Lipase or transesterifi\$16 and (Jojoba or (Wax
 esters) or (Lignocellulose or (Plant biomass) OR
 (jojoba oil))) or hydrogenated wax esters) and
 (Wax esters) or (Lignocellulose or (Plant
 biomass) OR (jojoba oil)) and (product and

esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16) or (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (product and (Without and (methyl ester)) or (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and Jojoba) and (Lipase or transesterifi\$16)						
((hydrogenated wax esters or (((Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 or (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16) or (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax	USOC, EPAB, JPAB, DWPL, FPRS	6	ADJ	YES		03-20-2017

esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters)) or (((Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 or (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16) or (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (product and (Without and (methyl ester)) or (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and Jojoba and Lipase or transesterifi\$16) and (enzymatic or enzymic or (enzyme mediated))						
(Transesterifi\$10 same Lipase) same (Wax esters)	PGPB, USPT	9	ADJ	YES		10-19-2017
(oxidative stability Index) or ("OSI")	PGPB, USPT	73362	ADJ	YES		10-19-2017

enhanced same ((oxidative stability Index) or ("OSI"))	PGPB, USPT	1091	ADJ	YES		10-19-2017
(enhanced or higher) same ((oxidative stability Index) or ("OSI"))	PGPB, USPT	8811	ADJ	YES		10-19-2017
Transesterified product	PGPB, USPT	519	ADJ	YES		10-19-2017
(((oxidative stability Index) or ("OSI")) or ((enhanced or higher) same (oxidative stability Index) or ("OSI"))) or (enhanced same (oxidative stability Index) or ("OSI"))	PGPB, USPT	73362	ADJ	YES		10-19-2017
(((oxidative stability Index) or ("OSI")) or (enhanced or higher) same (oxidative stability Index) or ("OSI")) or enhanced same (oxidative stability Index) or ("OSI")) same (Transesterified product)	PGPB, USPT	2	ADJ	YES		10-19-2017
(((oxidative stability Index) or ("OSI")) or (enhanced or higher) same (oxidative stability Index) or ("OSI")) or enhanced same (oxidative stability Index) or ("OSI")) same (Transesterified product) same ((Transesterified same Lipase) same (Wax esters))	PGPB, USPT	1	ADJ	YES		10-19-2017
Jojoba oil	PGPB, USPT	16054	ADJ	YES		10-19-2017
(Jojoba oil) same ((Transesterified same Lipase) same (Wax esters))	PGPB, USPT	2	ADJ	YES		10-19-2017
((Jojoba oil same (Transesterified same Lipase) same (Wax esters)) or (((oxidative stability Index) or ("OSI")) or (enhanced or higher) same (oxidative stability Index) or ("OSI")) or enhanced same (oxidative stability Index) or ("OSI")) same Transesterified product)) same (((oxidative stability Index) or ("OSI")) or (enhanced or higher) same (oxidative stability Index) or ("OSI")) or enhanced same (oxidative stability Index) or ("OSI"))	PGPB, USPT	2	ADJ	YES		10-19-2017
(soybean or (cotton seed) or canola or Linseed or Sunflower) same oil	PGPB, USPT	160741	ADJ	YES		10-19-2017
((soybean or (cotton seed) or canola or Linseed or Sunflower) same oil) same (((oxidative stability Index) or ("OSI")) or (enhanced or higher) same (oxidative stability Index) or ("OSI")) or enhanced same (oxidative stability	PGPB, USPT	207	ADJ	YES		10-19-2017

Index) or ("OSI"))						
((soybean or (cotton seed) or canola or Linseed or Sunflower) same oil same ((oxidative stability Index) or ("OSI") or (enhanced or higher) same (oxidative stability Index) or ("OSI")) or enhanced same (oxidative stability Index) or ("OSI")) same ((Transesterif\$10 same Lipase) same (Wax esters))	PGPB, USPT	0	ADJ	YES		10-19-2017
((Jojoba oil same (Transesterif\$10 same Lipase) same (Wax esters) or ((oxidative stability Index) or ("OSI") or (enhanced or higher) same (oxidative stability Index) or ("OSI")) or enhanced same (oxidative stability Index) or ("OSI") same Transesterified product) same ((oxidative stability Index) or ("OSI") or (enhanced or higher) same (oxidative stability Index) or ("OSI")) or enhanced same (oxidative stability Index) or ("OSI")) and ((C12P7/6436 C11C3/003 C11C3/10).CPC. and (435/134).CCLS. or (C12P7/64).IPCR.)	PGPB, USPT	2	ADJ	YES		10-19-2017
(Transesterif\$10 and Lipase) and (Wax esters)	PGPB, USPT	413	ADJ	YES		10-19-2017
((Transesterif\$10 and Lipase) and (Wax esters)) and ((Jojoba oil same (Transesterif\$10 same Lipase) same (Wax esters) or ((oxidative stability Index) or ("OSI") or (enhanced or higher) same (oxidative stability Index) or ("OSI")) or enhanced same (oxidative stability Index) or ("OSI") same Transesterified product) same ((oxidative stability Index) or ("OSI") or (enhanced or higher) same (oxidative stability Index) or ("OSI")) or enhanced same (oxidative stability Index) or ("OSI"))	PGPB, USPT	2	ADJ	YES		10-19-2017
(Transesterif\$10 and Lipase) and (Wax esters)	USOC, EPAB, JPAB, DWPI, FPRS	11	ADJ	YES		10-19-2017
(oxidative stability Index) or ("OSI")	USOC, EPAB, JPAB, DWPI, FPRS	44605	ADJ	YES		10-19-2017
(oxidative stability Index) or ("OSI") and (enhanced or increased or elevated)	USOC, EPAB,	7101	ADJ	YES		10-19-2017

	JPAB, DWPI, FPRS					
Transesterified product	USOC, EPAB, JPAB, DWPI, FPRS	255	ADJ	YES		10-19-2017
Jojoba oil	USOC, EPAB, JPAB, DWPI, FPRS	6031	ADJ	YES		10-19-2017
(soybean or (cotton seed) or canola or Linseed or Sunflower) and oil	USOC, EPAB, JPAB, DWPI, FPRS	131134	ADJ	YES		10-19-2017
(((oxidative stability Index) or ("OSI")) or (Transesterified product)) or ((oxidative stability Index) or ("OSI") and (enhanced or increased or elevated))	USOC, EPAB, JPAB, DWPI, FPRS	44856	ADJ	YES		10-19-2017
((Transesterified and Lipase) and (Wax esters)) and (Jojoba oil)	USOC, EPAB, JPAB, DWPI, FPRS	1	ADJ	YES		10-19-2017
((Transesterified and Lipase) and (Wax esters) and Jojoba oil) and (((oxidative stability Index) or ("OSI") or Transesterified product) or (oxidative stability Index) or ("OSI") and (enhanced or increased or elevated))	USOC, EPAB, JPAB, DWPI, FPRS	1	ADJ	YES		10-19-2017
((Transesterified and Lipase) and (Wax esters)) and ((soybean or (cotton seed) or canola or Linseed or Sunflower) and oil)	USOC, EPAB, JPAB, DWPI, FPRS	3	ADJ	YES		10-19-2017
((Transesterified and Lipase) and (Wax esters) and (soybean or (cotton seed) or canola or Linseed or Sunflower) and oil) and (((oxidative stability Index) or ("OSI") or Transesterified product) or (oxidative stability Index) or ("OSI") and (enhanced or increased or elevated))	USOC, EPAB, JPAB, DWPI, FPRS	0	ADJ	YES		10-19-2017

<i>Examiner-Initiated Interview Summary</i>	Application No. 14/578,075	Applicant(s) Addy et al.	
	Examiner KAILASH C SRIVASTAVA	Art Unit 1657	AIA Status Yes

All participants (applicant, applicant's representative, PTO personnel):

(1) KAILASH C. SRIVASTAVA, examiner. (3) ____.

(2) Mr. Adam Stephenson, applicants' representative. (4) ____.

Date of Interview: 31 October 2017.

Type: ☒ Telephonic ☐ Video Conference
☐ Personal [copy given to: ☐ applicant ☐ applicant's representative]

Exhibit shown or demonstration conducted: ☐ Yes ☒ No.
If Yes, brief description: ____.

Issues Discussed ☐ 101 ☐ 112 ☐ 102 ☐ 103 ☒ Others
(For each of the checked box(es) above, please describe below the issue and detailed description of the discussion)

Claim(s) discussed: 1-7.

Identification of prior art discussed: That of record.

Substance of Interview
(For each issue discussed, provide a detailed description and indicate if agreement was reached. Some topics may include: identification or clarification of a reference or a portion thereof, claim interpretation, proposed amendments, arguments of any applied references etc...)

See Continuation Sheet.

Applicant recordation instructions: It is not necessary for applicant to provide a separate record of the substance of interview.

Examiner recordation instructions: Examiners must summarize the substance of any interview of record. A complete and proper recordation of the substance of an interview should include the items listed in MPEP 713.04 for complete and proper recordation including the identification of the general thrust of each argument or issue discussed, a general indication of any other pertinent matters discussed regarding patentability and the general results or outcome of the interview, to include an indication as to whether or not agreement was reached on the issues raised.

☒ Attachment

/KAILASH C SRIVASTAVA/ Examiner, Art Unit 1657	
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Continuation of Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: Examiner discussed with applicants' representative examiner's proposed amendment to amend title, abstract and claims in the instant application (Please see, OA appendix document). The examiner presented to the representative that if the language of claim 1 is amended at lines 4-7 as indicated in examiner's proposed amendment, currently presented claims 1-7 will be considered for allowance. The representative agreed with the examiner. but asserted that the representative would like to leave the limitations after the wherein clause as presented currently. The examiner presented that said clause has to be deleted because of the recitation of a positive result after the wherein clause without describing a step leading to said positive result. Furthermore, as currently presented, said limitation is a potential rejection under 35 U.S. C. § 112 (b) according to M.P.E.P. § 2111.04. In representative's mind said clause does not pose a potential rejection under 35 U.S. C. § 112 (b) according to M.P.E.P. § 2111.04, because of the discussion of Griffin vs. Bertina and also because a person of ordinary skill in the art is apprised of the certain formula produced by non-enzymatic catalytic process and would also know a step of determining the viscosity of a product of catalysis whether produced by enzymatic catalysis or non-enzymatic catalysis. Accordingly, an agreement could not be reached.



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/578,075	12/19/2014	Jeff Addy	FloraTech002	2053
93756	7590	11/30/2017	EXAMINER	
IPTechLaw 8350 E Raintree Dr., Ste 245 Scottsdale, AZ 85260			SRIVASTAVA, KAILASH C	
			ART UNIT	PAPER NUMBER
			1657	
			NOTIFICATION DATE	DELIVERY MODE
			11/30/2017	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):

ipdocket@iptech.law
adam@iptech.law

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.

Acknowledgements

Authorization to communicate through Internet in a patent application (i.e., PTO/SB/439) filed 10/20/2017 is acknowledged.

Response to Remarks

Applicants' remarks, filed 07/21/2017, are acknowledged. Applicants' arguments have been fully considered. The following rejections and/or objections are either reiterated or newly applied. They constitute the complete set presently being applied to the instant application. Rejections and/or objections not reiterated from the previous office actions have been withdrawn.

Claims Status

According to response filed 07/21/2017, claims 7-21 are under examination.

Allowable Subject Matter

During a telephone interview (please see attached interview summary) on 10/31/2017 applicants' representative and examiner discussed examiner's proposed amendment, however, an agreement could not be reached.

Withdrawals

Considering amendments and remarks filed 07/21/2017, obviousness rejection of claims 1-7 35 U.S.C. §103(a) over **Compton et al** (WO2001/72683 A1) in view of **Kodali et al** (US Patent 2005/0176597 A1) and **Brown et al** (WO 2005061686 A1) is withdrawn. A new rejection, however, follows (Please see below).

Information Disclosure Statement (IDS)

IDS document(s) filed 07/27/2017 is/are in compliance with the provisions of 37 C.F.R. §1.97. Accordingly, the IDS document(s) has/have been fully considered by the examiner.

Examiner notes that in said IDSs the top section of each of the pages, information to be filled out by applicant is missing. Examiner has filled the information as a courtesy and to expedite the prosecution. For future, please note the responsibility, however, is of applicants to ensure that said information is complete prior to filing the IDS.

Claim Rejections - 35 U.S.C. §101

The following is a quotation of 35 U.S.C. §101 that form the basis for the rejections under this section made in this Office action:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-7 are rejected under 35 U.S.C. §101 as being drawn to non-statutory subject matter. As written, the claims are drawn to naturally occurring biological material (i.e., wax esters from plants, jojoba oil or animal) and lipase enzyme that is also obtained

from a natural source *per se*, which are products of nature. Consequently, the claim does not embody patentable subject matter as defined in 35 U.S.C. §101. See, e.g., *American Wood v. Fiber Disintegrating Co.*, 90 U.S. 566 (1974); *American Fruit Growers v. Brogdex Co.*, 283 U.S. 1 (1931); *Funk Brothers Seed. Co. v. Kalo Inoculant Co.* 33 U.S. 127 (1948); *Diamond v. Chakrabarty*, 206 U.S.P.Q. 193 (1980)) and further according to the guidance in Federal register announcements 2014, 2015 and 2016 (See, e.g., <http://www.uspto.gov/patent/laws-and-regulations/examination-policy/2014-interim-guidance-subject-matter-eligibility-0.>)

The claimed invention is not directed to patent eligible subject matter based upon an analysis with respect to the claim as a whole. This is because claim(s) do not recite something significantly different than a judicial exception. The rationale for this determination is explained below.

Analysis:

Given the broadest reasonable interpretation (i.e., BRI), the claims are directed to a statutory category, e.g., a manufacture or composition of matter that is applicable in a method. Thus, the claim qualify under the first step of the decision tree from the Federal register citation recited *supra*.

Further, the claims recite a nature-based product (i.e., a wax ester of plant or animal origin comprised of (i) antioxidants, e.g., tocopherols; (ii) volatile products in the feedstock; and (iii) a lipase enzyme.

To determine whether the claim is directed to a “product of nature” exception, the nature-based product is analyzed using the markedly different characteristics analysis. The claimed jojoba wax esters comprised of antioxidants and further volatile

compounds are not demonstrated to have a characteristic different than that from a product of nature, i.e., jojoba wax esters. The other component, namely lipase are present in a variety of microorganisms, e.g., *Candida* spp, and some plants. Said lipase has not been shown to have a characteristic different than those from natural sources e.g., *Candida*. Said lipase is applicable for transesterification.

Thus, the wax esters to be transesterified and the catalytic agent to transesterify said wax esters (i.e., lipase) are (i) product of nature and (ii) known in pertinent prior art to transesterify esters. Thus, neither the structure of instantly claimed feedstock, or the catalytic agent falls under the structure, nor functionality thereof falls under the criteria given in step 2A. Thus, the claims are directed to nothing significantly more than the judicial exception according to the criterion in Step 2A of the Federal Register citation recited *supra*.

Next, the claim as a whole is analyzed to determine whether any element, or combination of elements, is sufficient to ensure that the claim amounts to significantly more than the exception. In the instant claimed method steps, the method steps do not describe any step that is **NOT** routine and conventional in the pertinent art. E.g., transesterification with lipase. Thus, the method steps are indistinguishable from what is routine and conventional in the pertinent art.

Thus, the claim does not amount to significantly more than the judicial exception according to the Step 2B of analysis. Thus, claims 1-7 are patent ineligible.

According to the analysis of claims 1-7 presented *supra*, said claims as a whole are not eligible for patentability.

Accordingly, claims 1-7 are rejected under pre-AIA 35 U.S.C. §101.

Claim Rejections - 35 USC § 112, 2nd Paragraph

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(s) 1-7 are rejected under 35 U.S.C. §112(b) 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. Claims that depend directly or indirectly from claim 1 are also rejected due to said dependency.

Claim 1, at Lines 6-7, claim 2 at lines 1-2, each of claims 3 & 7 at lines 1-4, claim 4 at lines 1-5; recite, “wherein” followed by positively citing the result of a method step, rather than describing the method step itself, or how said result is accomplished (e.g., claim 7, at lines 3-4, “and the dropping point of the transesterified product increases as a percentage of hydrogenated jojoba wax esters in the feedstock increases). In the exemplary recitations, said positive result of a method after the word, “wherein” are problematic because of following reasons:

(a) The above phrase and those recited after the recitation, “wherein” in each of claims 1-7 are confusing because said phrases combine positive process limitations, intended use limitations, and a “wherein” clause that includes suggestive process limitations, Therefore, it is unclear what steps are minimally required by the above phrase to perform the method step. Clarification for each of claims 1-7 is requested via amendment.

(b) It is unclear what limiting effect is intended by the above “wherein” clause. See also M.P.E.P. § 2111.04. Clarification for each of claims 1-7 is requested via amendment.

Recitation, “an oxidative stability index (OSI) of the transesterified product is greater than an OSI of the feedstock y” at claim 1, Lines 6-7 seems to lack a critical, essential method step. This is because parameters to determine said “OSI” and metes and bounds thereof are not clearly defined in said claim 1. It seems that parameters to determine OSI and establishing that OSI in feedstock is lower than the OSI in the product is a critical feature of the process. Accordingly, step to establish that the enzymatically catalyzed product yields better results than the product produced non-enzymatically is essential to the process claimed in said claim 1. Thus, claim 1 as currently presented seems to clearly lack a critical, essential method step. See, M.P.E.P. §2172.01[R-11.2013]), M.P.E.P. §2164.08 (c) [R-08.2012}. Appropriate correction is required through claim amendment.

35 U.S.C. §103 Rejections

In the event the determination of the status of the application as subject to AIA 35 U.S.C. §§102 and 103 (or as subject to pre-AIA 35 U.S.C. §102 and §103) is incorrect, any correction of the statutory basis for the rejection will not be considered a new ground of rejection if the prior art relied upon, and the rationale supporting the rejection, would be the same under either status.

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

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole

would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter 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 pre-AIA 35 U.S.C. 103(a) 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.

This application currently names joint inventors. In considering patentability of the claims under pre-AIA 35 U.S.C. §103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR §1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of pre-AIA 35 U.S.C. §103(c) and potential pre-AIA 35 U.S.C. §§102(e), (f) or (g) prior art under pre-AIA 35 U.S.C. §103(a).

Claims 1-5 rejected under 35 U.S.C. §103 as being obvious over **Compton** (**Compton et al** (WO2001/72683 A1; published 10/04/2001 already of record) in view of Kodali (**Kodali et al.**, US Patent 2005/0176597 A1; published 08/11/2005 and already of record).

Claims 1-5 are examined to the extent that claims 1-5 are drawn to a process to transesterify wax esters with a lipase, wherein wax esters are from Jojoba. No methyl

esters in the transesterified product, antioxidants in jojoba are not catalyzed, OSI in transesterified product is higher than OSI in feedstock.

Regarding claim 1 – Compton teaches a process for transesterifying wax esters applying coumarate esters, i.e., transesterification process using coumarate, a wax ester in to coumaryl-substituted acylglycerols from vegetable oils (abstract, Lines 1-3; page 5, Lines 3-10), especially jojoba oil (Page 5, Line 6 ; page 6, Lines 1-14; Scheme I, Left side; ; claim 14); contacting the feedstock with a lipase thereby catalytically transesterifying the wax esters in the feedstock with the lipase to form a transesterified product under conditions that permit transesterification of said ester by the lipase catalyst (See, claim 14).

Regarding claim 2, Compton's formula I teaches the product of ransesterification comprising no methyl esters (Page 3, Lines 14-27).

Regarding claim 3, Compton defines an antioxidant in the skin product (Page 9, Line 23)

Regarding claim 4, Compton's feedstock further comprises a skin conditioning agent, e.g., use of an ester of ferulic acid to create a ferulyl-substituted acylglycerols, which includes properties suitable for use as sunscreen agents (i.e., a skin conditioning agent; Abstract, Lines 2-4; page 3, Lines 14-27; page 5, Lines 3-6; page 6, Lines 1-14) and a volatile compound. The reaction may be carried out using toluene solvent (i.e., a volatile compound; page 5, Lines 25-26) and catalytically transesterifying the wax esters in the feedstock with the lipase further comprises catalytically transesterifying without one of removing and degrading the skin conditioning agent, (i.e., the ferulyl-substituted

acylglycerols are suitable for use as sunscreen agents; Abstract, Lines 2-4) and without degrading said compounds (Page 11, Lines 4-17).

Regarding claim 5, Compton teaches that the wax esters are from a Markush Group of oils including jojoba oil (Page 9, Line 10).

Compton is silent regarding limitations in claims 1 with respect to oxidative stability index (OSI) of the transesterified product is greater than an OSI of the feedstock.

Regarding claim 1, Kodali teaches a method to determine oxidative stability index (OSI) of the transesterified product (Page 4, Paragraph (i.e., ¶) 0046). Kodali further teaches that transesterified product made from an oil has greater OSI than the feedstock oil when both have same level of antioxidants because when an oil is made by transesterification, the oxidative stability of the transesterified oil is greater than that of the starting oil. Additionally, OSI of the transesterified product can be enhanced by minimizing tocopherol loss during transesterification (¶0047).

It would have been *prima facie* obvious to one of ordinary skill in the art before the effective filing date of the claimed invention to modify the method of Compton regarding the feature in claim 1 of OSI and increased OSI in the product compared to that in the feedstock as taught by Kodali. This is because Compton already teaches lipase mediated transsterification of a vegetable oil (i.e., jojoba oil) and Kodali teaches step of determination of OSI and further teaches that the OSI of transesterified product is enhanced by using a vegetable oil as feedstock and further preventing loss of tocopherols, where the motivation would have been to produce a transesterified product having a higher OSI than in the feedstock.. For these reasons, the claimed invention as

a whole does not recite any new element, new function, or unpredictable result, and would have been *prima facie* obvious at the time it was made.

From the teachings of the references, it is apparent that one of ordinary skill in the art would have had a reasonable expectation of success in producing the claimed invention. A combination of teachings from Compton and Kodali would have resulted in a transesterified product having higher OSI than the feedstock. Therefore, the invention as a whole was *prima facie* obvious to one of ordinary skill in the art prior to the time that the invention was made, as evidenced by the references, especially in the absence of evidence to the contrary.

Claims 6-7 rejected under 35 U.S.C. §103 as being obvious over **Compton (Compton et al** (WO2001/72683 A1; published 10/04/2001 already of record) in view of Kodali (**Kodali et al., US Patent 2005/0176597 A1**; published 08/11/2005 and already of record) as applied to claims 1-5 *supra*, and further in view of **Brown (Brown et al., WO 2005061686 A1** published 07/07/2005 already of record).

Claims 6-7 are examined to the extent that claims 6-7 are drawn to a process to transesterify wax esters with a lipase, wherein wax esters are from Jojoba and comprise hydrogenated jojoba wax esters. Furthermore, dropping point in transesterified product is higher than dropping point in feedstock

Regarding claims 6-7, teachings from Compton have been discussed *supra*. Compton is silent regarding hydrogenated jojoba wax esters and that the dropping point in transesterified product is higher than dropping point in feedstock

Brown teaches jojoba ester as comprised of hydrogenated jojoba wax ester (Page 9, Lines 1-3). Furthermore, dropping point of the transesterified product is greater than the dropping point of the feedstock and the dropping point of the transesterified product increases as a percentage of hydrogenated jojoba wax esters in the feedstock increases. Brown et al., additionally teach that as the percentage of hydrogenated jojoba wax esters in the feedstock increase, the melting point of the oil or wax generally increases linearly as a function of the amount of hydrogen that has been added. Accordingly, the use of fully hydrogenated jojoba oil improves the melting point of the product (Page 3, Lines 3-5' Page 9, Lines 11-14).

It would have been *prima facie* obvious to one of ordinary skill in the art before the effective filing date of the claimed invention to modify the method of Compton regarding the features in each of claims 6-7 of hydrogenated jojoba wax esters and also of increased dropping point in the transesterified product compared to that in the feedstock as taught by Brown. This is because Compton already teaches lipase mediated transsterification of a vegetable oil (i.e., jojoba oil) and Brown teaches that the dropping point of transesterified product is enhanced in the transesterified product, where the motivation would have been to produce a transesterified product having a higher drooping point than in the feedstock. For these reasons, the claimed invention as a whole does not recite any new element, new function, or unpredictable result, and would have been *prima facie* obvious at the time it was made.

From the teachings of the references, it is apparent that one of ordinary skill in the art would have had a reasonable expectation of success in producing the claimed invention. A combination of teachings from Compton and Brown would have resulted in

a transesterified product having higher drooping point than the feedstock. Therefore, the invention as a whole was *prima facie* obvious to one of ordinary skill in the art prior to the time that the invention was made, as evidenced by the references, especially in the absence of evidence to the contrary.

Response to Arguments

Claims 1-7 rejected under 35 U.S.C. §103 as being unpatentable over **Compton et al** (WO2001/72683 A1) in view of **Kodali et al** (US Patent 2005/0176597 A1) and **Brown et al** (WO 2005061686 A1).

Claims 1-7 are examined to the extent that claims 1-7 are drawn to a process to transesterify wax esters with a lipase, wherein wax esters are from Jojoba. No methyl esters in the transesterified product, antioxidants in jojoba are not catalyzed, OSI and dropping point in transesterified product is higher than OSI and dropping point in feedstock.

Regarding claims 1-7, **Compton et al.**, each the limitations regarding claim 1 - teaching a process for transesterifying wax esters applying coumarate esters, i.e., transesterification process using coumarate, a wax ester in to coumaryl-substituted acylglycerols from vegetable oils (abstract, Lines 1-3; page 5, Lines 3-10), especially jojoba oil (Page 5, Line 6 ; page 6, Lines 1-14; Scheme I, Left side; ; claim 14); contacting the feedstock with a lipase thereby catalytically transesterifying the wax esters in the feedstock with the lipase to form a transesterified product under conditions that permit transesterification of said ester by the lipase catalyst (See, claim 14).

Regarding claim 2 - formula I teaches the product of the transesterification comprising no methyl esters (Page 3, Lines 14-27).

Regarding claim 3 - defines an antioxidant in the skin product (Page 9, Line 23)

Regarding claim 4 – feedstock further comprises a skin conditioning agent, e.g., use of an ester of ferulic acid to create a ferulyl-substituted acylglycerols, which includes properties suitable for use as sunscreen agents (i.e., a skin conditioning agent; Abstract, Lines 2-4; page 3, Lines 14-27; page 5, Lines 3-6; page 6, Lines 1-14) and a volatile compound. The reaction may be carried out using toluene solvent (i.e., a volatile compound; page 5, Lines 25-26) and catalytically transesterifying the wax esters in the feedstock with the lipase further comprises catalytically transesterifying without one of removing and degrading the skin conditioning agent, (i.e., the ferulyl-substituted acylglycerols are suitable for use as sunscreen agents; Abstract, Lines 2-4) and without degrading said compounds (Page 11, Lines 4-17).

Regarding claim 5 - wherein the wax esters are from a Markush Group of oils including jojoba oil (Page 9, Line 10).

Compton et al., are silent regarding limitations in claims 1 and 6-7 with respect to oxidative stability index (OSI) of the transesterified product is greater than an OSI of the

feedstock, hydrogenated jojoba wax esters, antioxidants of the feed stock not oxidized as a result of lipase mediated transesterification and the values of dropping point .

Kodali et al., teach an oxidative stability index (OSI) of the transesterified product is greater than an OSI of the feedstock because when an oil is made by transesterification, the oxidative stability of the transesterified oil is greater than that of the starting oil, which is measured via an oxidative stability index (Paragraph (i.e.,¶); 0040, Lines 12-16: ¶0041.Lines 2-21).

Brown et al., teach jojoba ester as comprised of hydrogenated jojoba wax ester (Page 9, Lines 1-3). Furthermore, dropping point of the transesterified product is greater than the dropping point of the feedstock and the dropping point of the transesterified product increases as a percentage of hydrogenated jojoba wax esters in the feedstock increases. Brown et al., additionally teach that as the percentage of hydrogenated jojoba wax esters in the feedstock increase, the melting point of the oil or wax generally increases linearly as a function of the amount of hydrogen that has been added. Accordingly, the use of fully hydrogenated jojoba oil improves the melting point of the product (Page 3, Lines 3-5' Page 9, Lines 11-14).

It would have been *prima facie* obvious to a person of ordinary skill in the art prior to the time when the invention was made and said artisan would have been motivated to combine the teachings from Compton et al., with those from Kodali et al., and Brown et al., because:

Said person would have supplemented the process of Compton et al., with the teachings of Kodali et al., and Brown et al., references to obtain a process that would have resulted in an improved esterification process that improves oxidative stability with the use of antioxidants and also increase in the dropping point of transesterified product. This is because, Kodali et al., remedy the silence in Compton et al., process of higher oxidative index in the transesterified product. Furthermore, Brown et al., remedy the silence in Compton et al., process to obtain a transesterified product with higher hydrogenation and to result in a superior wax ester to provide higher dropping point. Thus, Kodali et al., embellish the process of Compton et al., with higher oxidative transesterified products and Brown et al., embellish the Compton et al process to yield a product that is an excellent carrier and vehicles for delivery of compositions for use in the cosmetic, personal care and/or pharmaceutical field, including the cosmeceutical field where cosmetic compositions also provide pharmaceutical or other therapeutic benefits.

.From the teachings of the cited references, it is apparent that one of ordinary skill in the art would have had a reasonable expectation of success in producing the claimed invention. Therefore, the invention as a whole was *prima facie* obvious to one of ordinary skill in the art at the time the invention was made, as evidenced by the references, especially in the absence of evidence to the contrary.

Response

Applicants' arguments filed 07/21/2017 have been fully considered but are not persuasive for the following reasons.

Applicants argue that examiner has not (i) clarified the legal standard set forth under which said 35 U.S.C. §103(a), said obviousness rejection is made (See, Remarks filed 07/21/2017, Page numbered 4, Lines 21-24). (ii), Secondly, examiner "acknowledges that Compton fails to disclose anything regarding OSI and relies on Kodali to teach increased OSI in the product (See, Remarks filed 07/21/2017, Page numbered 5, Lines 20-27). (iii), Applicant makes further arguments that the chemical transesterification can be problematic because it lowers the tocopherols (See, Remarks filed 07/21/2017, Page numbered 6, Lines 1-5). (iv), Applicants also argue that because Kodali does not teach enzymatic transesterification, combination of Compton and Kodali does not render claim 1 obvious and for same reason also dependent claims 2-7.

Accordingly, the obviousness rejection of claims 1-7 is in error (See, Remarks filed 07/21/2017, Page numbered 8, Lines 1-2).

(i) First, contrary to applicants' remarks, examiner HAS CLARIFIED AT THE VERY OUTSET THAT THE REJECTION IS OVER THE COMBINED TEACHINGS OF THREE REFERENCES. Accordingly applicants' interpretation that examiner has not explicitly clarified the basis for obviousness is incorrect. The record should accordingly be corrected in response to the instant office action.

(ii) Secondly, applicants' assertion, "examiner acknowledges that Compton fails to disclose anything regarding OSI" is in error. Examiner has clearly stated, "COMPTON ET AL., ARE SILENT REGARDING THE LIMITATION IN CLAIM 1---"(See, Office

Action mailed 4/26/2017, Page 5, Line 21). Silence, however, does not preclude obviousness or anticipation (See, M.P.E.P., §§2144.05 and 2131).

(iii) Regarding applicants' argument that combination of Compton, Kodaly, Kodaly and Brown does not render the invention claimed in claims 1-7 obvious, (a) Kodaly was not included to teach the non-enzymatic or enzymatic transesterification of wax esters from jojoba. The transesterification has already been established according to teachings in Compton. Having established enzymatic transesterification and differences between non-lipase (i.e., enzymatic) transesterification and lipase-mediated transesterification, Kodali reference was included merely to demonstrate OSI. Examiner re-iterates that Kodali clearly teaches (See, Kpdali 0047) that increased OSI in the trans-esterified product is a function of higher amounts of tocopherols in the feedstock, e.g., jojoba and maintaining levels of tocopherols (emphasis added; See, also the revised rejection under 35 U.S.C. §103 in the instant office action, *supra*). It seems to the examiner that applicants have argued on the basis of only one embodiment from Kodali, rather than considering the entire teachings from the Kodali reference. (iv) Examiner has made the revised rejection upon further consideration according to the teachings from Compton with Kodali. Please note that the prior art of Brown is no longer relied upon in combination with Compton and Kodali for emphasizing obviousness of the OSI limitation.

Regarding applicants' arguments that Koddali teaches away from the teachings of Compton and applicants' results are unexpected; (i) Kodali in another embodiment clarifies that the higher amounts of OSI are obtained in the trans-esterified product as a function of tocopherol concentrations in the feed stock and maintaining the concentration of said tocopherols during transesterification results in higher OSI in the

transesterified product. Also, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art prior to the date that the invention was made. See *In re Keller* 642. F. 2d 413, 208 USPQ 871 (CCPA 1981). Note that although each of the Examiner-cited references by themselves may not teach every component in the same order or manner as claimed in the claims under prosecution in the instant application, these references are not relied upon exclusively but in combination. Furthermore, the 35 U.S.C. §103 statute does not require that the prior art identically disclose or describe applicants' invention but rather that no patent should be obtained if the subject matter as a whole would have been obvious to persons having ordinary skill in this art prior to the time the invention was made. In this case, given the teachings from each one of the cited references and as discussed *supra*, the instantly claimed invention in claim 1 and those dependent on said claim 1 (i.e., claims 1-7) would have been obvious to a person of ordinary skill prior to the time the claimed invention was made.

Applicant's arguments filed 07/21/2017 have been fully considered but are not persuasive for the reasons discussed *supra*.

Non-Statutory Double Patenting (ODP)

The non-statutory double patenting (ODP) 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 time wise extension of the

"right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Long*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Omum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 C.F.R. § 1.321(c) may be used to overcome an actual or provisional rejection based on a non-statutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 C.F.R. § 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 C.F.R. § 3.73(b).

Web-based e-Terminal Disclaimer (e-TD)

A terminal disclaimer may be effective to overcome an obviousness-type double patenting rejection over a prior patent (37 C.F.R. §§1.321 (b) and (c)). The USPTO internet Web site contains terminal disclaimer forms which may be used. Please visit <http://www.uspto.gov/forms/>. The filing date of the application will determine what form should be used. A web-based e-TD may be filled out completely online using web-screens. An e-TD that meets all requirements is auto-processed and approved immediately upon submission.

For more information about e-TD, refer to:

<http://www.uspto.gov/patents/process/file/efs/guidance/eTD-info-1.jsp>.

Claims 1-7 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 8-14 of copending U.S. Patent application serial number (i.e., USSN) 14/841,242.

Although the conflicting claims are not identical, they are not patentably distinct from each other because the method claims in instantly presented claims 1-7 are drawn to similar compositions and similar steps as claimed in claims 8-14 of said co-pending USSN) 14/578,075. Additionally, the ODP analysis for instantly presented claims 1-7 *vis a vis* said claims 8-14 in the co-pending USSN 14/841,242 (See, M.P.E.P. §804 (II)(B)) shows *ad verbatim* same preamble, addition of lipase, similar feedstock with only difference that the feedstock in said claim 8 of said copending also comprises alcohol as part of feedstock. Post transesterification in each application a certain property of the feedstock and the transesterified product are evaluated. Thus, the steps in each method are same, viz., bring a wax esters comprising feedstock and a lipase enzyme together. Conduct transesterification and inherent at least one inherent property common to each, the feedstock and the transesterified product. Furthermore, the properties evaluated are inherent properties of the wax esters because said properties are dependent on the tocopherol concentration of feedstock and transesterified product. Thus, the claims in the instant application are slight variation of the claims in the copending USSN 14/841,242. Accordingly, claims 1-7 of instant USSN 14/578,075 would be obvious to one of ordinary skill in the pertinent art.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented. Please note that the instant application is a CIP of said USSN 14/578,075.

Conclusion

No Claims are allowed.

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KAILASH C SRIVASTAVA whose telephone number is (571)272-0923. The examiner can normally be reached on M-Th 7:30 A.M. to 6:00 P.M. 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, LOUISE W HUMPHREY can be reached on 571-272-5543. 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.

Art Unit: 1657

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see <http://pair-direct.uspto.gov>. 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.

/KAILASH C SRIVASTAVA/
Examiner, Art Unit 1657



((Lipase mediated transesterification) increased oxidative stability index in trans



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Lipase catalyzed ester synthesis for food processing industries - SciELO

www.scielo.br/scielo.php?script=sci_arttext&pid=S1516-89132009000100026 ▼

by A Rajendran - 2009 - Cited by 92 - Related articles

Feb 15, 2009 - **Lipase mediated transesterification** are likely to occupy a prominent place in the ...

The types of the triacylglycerol products obtained by the lipase-catalyzed ... In the food processing industry, lipase should possess high stability at room temperature. fatty acids which were transformed to volatiles as a result of the oxidation.

Missing: **transesterified**

Chemical Reactions of Oil, Fat and Fat Based Products

journeytoforever.org/biofuel_library/chemoils.html ▼

Oct 15, 1997 - Edible oils and fats sources, processing, bulk products and dispersions. ... For this purpose, pancreatic lipase hydrolysis is carried out under controled mild conditions **Oxidation** will increase PV (peroxide value) and hydrolysis will increase acidity, ... of transportation costs and because of its increased stability to oxidation.

Missing: **transesterified**

[PDF] Molecular Structure of Natural Rubber and Its ... - InTechOpen

cdn.intechopen.com/.../InTech-Molecular_structure_of_natural_rubber_and_its_char... ▼

by JT Sakdapipanich - Cited by 13 - Related articles

Mar 14, 2012 - rubber products made from NR latex (e.g., gloves and condoms) should be treated to ... the resultant deproteinized solid rubber, and transesterification of ... ¹H-NMR spectra of low-molecular weight fractions of transesterified natural rubber, ... stability during storage, but it is always accompanied with the increase in the gel ...

Oxidation Behavior of Triacylglycerol Containing Conjugated ... - J-Stage

https://www.jstage.jst.go.jp/article/jos/63/1/63_ess13129/_pdf

by Y Yamamoto - 2014 - Cited by 3 - Related articles

Aug 26, 2013 - triolein, trilinolein and their transesterified derivatives5) noic acid (DHA) , the oxidative stability of TAGs with DHAs ... than 60% of CLN showed a moderate increase in the per- ... Lipozyme RM-IM (immobilized Rhizomucor miehei lipase)-mediated acidolysis- and ... transesterification of CLA ethyl ester with tricaprylin11) .

In order to show you the most relevant results, we have omitted some entries very similar to the 4 already displayed.

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Art Unit: **Error! Unknown document property name.****EXAMINER'S Proposed AMENDMENT****Draft****Examiner's Amendment**

An Examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicants, an amendment may be filed as provided by 37 C.F.R. §1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given through a xxxxxxxxxxxx communication on xxxxxxxxxxxx with M-. xxxxxxxxxxxxxxxx, applicants' representative. Incomplete.

In the Title

~~PROCESSES AND SYSTEMS FOR CATALYTIC MANUFACTURE~~
~~OF WAX ESTER DERIVATIVES~~ FOR LIPASE ENZYME MEDIATED
TRANSESTERIFICATION OF VEGETABLE OIL WAX ESTERS

In the Abstract

Processes are described for transesterifying wax esters.
~~Implementations may~~ Described processeses include: providing a feedstock including wax esters, contacting the feedstock with a lipase, and catalytically transesterifying the wax esters in the feedstock with the lipase to form a transesterified product. ~~[[An]]~~ The oxidative stability index (OSI) of

Art Unit: **Error! Unknown document property name.**

the lipase mediated transesterified product may be greater than ~~[[an]]~~ OSI of the feedstock.

In the claims

1. (Examiner Amended) A process for transesterifying wax esters, the process comprising: providing a feedstock comprising wax esters;
contacting the feedstock with a lipase;
catalytically transesterifying the wax esters in the feedstock with the lipase to form ~~[[a]]~~ an enzyme –mediated transesterified product; and
~~wherein~~ ~~[[an]]~~ in said enzyme-mediated transesterified product oxidative stability index (OSI) of the ~~enzymatically~~ lipase transesterified product is greater than ~~[[an]]~~ OSI of ~~[[the]]~~ said feedstock and said OSI in the lipase mediated esterified product is also greater than a non-enzyme mediated, chemically transesterified product. Said feedstock is jojoba oil.
2. (Original) The process of claim 1, wherein the transesterified product comprises no methyl esters.
3. (Original) The process of claim 1, wherein the feedstock further comprises an antioxidant and catalytically transesterifying the wax esters in the feedstock with the lipase further comprises catalytically transesterifying without one of removing and degrading the antioxidant in the feedstock.

Art Unit: **Error! Unknown document property name.**

4. (Original) The process of claim 3, wherein the feedstock further comprises a skin conditioning agent and a volatile compound and catalytically transesterifying the wax esters in the feedstock with the lipase further comprises catalytically transesterifying without one of removing and degrading the skin conditioning agent and the volatile compound in the feedstock.
5. (Original) The process of claim 1, wherein the wax esters of the feedstock are jojoba wax esters.
6. (Original) The process of claim 5, wherein the jojoba wax esters further comprise hydrogenated jojoba wax esters.
7. (Original) The process of claim 6, wherein a dropping point of the transesterified product is greater than a dropping point of the feedstock and the dropping point of the transesterified product increases as a percentage of hydrogenated jojoba wax esters in the feedstock increases.
- 8-20. (Canceled).

Conclusion

Claims 1-7 are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KAILASH C SRIVASTAVA whose telephone number is (571)272-0923. The examiner can normally be reached on M-Th 7:30 A.M. to 6:00

Art Unit: **Error! Unknown document property name.**

P.M. 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, LOUISE W HUMPHREY can be reached on 571-272-5543. 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 <http://pair-direct.uspto.gov>. 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.

KAILASH C SRIVASTAVA
Examiner, Art Unit 1657

Art Unit: **Error! Unknown document property name.**

FLORATECH002

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

AMENDMENT/REPLY

Applicant: Jeff Addy

Docket No: FLORATECH002

Examiner: SRIVASTAVA, KAILASH C

Ser. No: 14578075

Filed: December 19, 2014

Group Art Unit: 1657

Conf. No.: 2053

Title: Processes and Systems for Catalytic Manufacture of Wax Ester Derivatives

**RESPONSE TO OFFICE ACTION
DATED NOVEMBER 30, 2017**

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir/Madam:

The following is responsive to the Office Action mailed November 30, 2017. Applicant respectfully requests reconsideration of the application in view of the following:

Clean Version of Current Status of the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks/Arguments begin on page 4 of this paper.

CLEAN VERSION OF CURRENT STATUS OF THE CLAIMS

There are no amendments to the following claims, but the claims are provided here to indicate the current status of the claims pending in the application.

1. (Original) A process for transesterifying wax esters, the process comprising:

 providing a feedstock comprising wax esters;

 contacting the feedstock with a lipase;

 catalytically transesterifying the wax esters in the feedstock with the lipase to

form a transesterified product;

 wherein an oxidative stability index (OSI) of the transesterified product is

greater than an OSI of the feedstock.
2. (Original) The process of claim 1, wherein the transesterified product comprises no methyl esters.
3. (Original) The process of claim 1, wherein the feedstock further comprises an antioxidant and catalytically transesterifying the wax esters in the feedstock with the lipase further comprises catalytically transesterifying without one of removing and degrading the antioxidant in the feedstock.
4. (Original) The process of claim 3, wherein the feedstock further comprises a skin conditioning agent and a volatile compound and catalytically transesterifying the wax esters in

the feedstock with the lipase further comprises catalytically transesterifying without one of removing and degrading the skin conditioning agent and the volatile compound in the feedstock.

5. (Original) The process of claim 1, wherein the wax esters of the feedstock are jojoba wax esters.

6. (Original) The process of claim 5, wherein the jojoba wax esters further comprise hydrogenated jojoba wax esters.

7. (Original) The process of claim 6, wherein a dropping point of the transesterified product is greater than a dropping point of the feedstock and the dropping point of the transesterified product increases as a percentage of hydrogenated jojoba wax esters in the feedstock increases.

8-20. (Canceled).

REMARKS

Claims 1-7 are currently pending in the application. Applicant requests reconsideration of the application in light of the following remarks.

Telephone Interview

Applicant's attorney wishes to thank the Examiner for his courtesy and time during a telephone interview that was held on 10/31/17.

Rejections under 35 U.S.C. 112

Claims 1-7 stand rejected by the Examiner under 35 U.S.C. 112. Specifically, in the 11/30/18 OA on pg. 6, the Examiner argues that using "wherein" in a method claim is reciting the result of the method step rather than the method itself. The Applicant respectfully traverses this rejection. The steps of the method are recited in the first three clauses of the claim which is apparent with the gerund form of the verbs which is required in method steps. The wherein phase of the claim is merely describing one of the properties of the product formed using the method that is unique to products made using this particular method. Therefore, the Applicant has particularly pointed out the subject matter of the claim and has included a resulting quality of the product. Applicant respectfully requests that the rejection of claims 1-7 under 35 U.S.C. 112 be withdrawn.

Double Patenting Rejection

Claims 1-7 stand rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 8-14 of U.S. Patent Application No. 14/841,242 to Addy.

The Examiner's analysis of why claims 1-7 of the present application are rejected based on the claims of the '242 patent application is in error. Specifically, the Examiner states on p.19 of the 11/30/17 OA that "Although the conflicting claims are not identical, they are not patentably distinct from each other because the method claims in instantly presented claims 1-7 are drawn to similar compositions and similar steps as claimed in claims 8-14 of said co-

pending USSN 14/578,075. Additionally, the ODP analysis for instantly presented claims 1-7 *vis a vis* said claims 8-14 in the co-pending USSN 14/841,242 (See, M.P.E.P. §804 (II)(B)) shows *ad verbatim* same preamble, addition of lipase, similar feedstock with only difference that the feedstock in said claim 8 of said copending also comprises alcohol as part of feedstock. Post transesterification in each application a certain property of the feedstock and the transesterified product are evaluated. Thus, the steps in each method are same, viz., bring a wax esters comprising feedstock and a lipase enzyme together. Conduct transesterification and inherent at least one inherent property common to each, the feedstock and the transesterified product. Furthermore, the properties evaluated are inherent properties of the wax esters because said properties are dependent on the tocopherol concentration of feedstock and transesterified product. Thus, the claims in the instant application are slight variation of the claims in the copending USSN 14/841,242,” are in error.

Specifically in MPEP § 804 (II)(B) Requirements of a Double Patenting Rejection – Nonstatutory Double Patenting, the Examiner is required to perform an Anticipation Analysis followed by an Obviousness Analysis if the previously patented claims are not found to anticipate the claims. In performing the anticipation analysis, the Examiner must determine whether the entire scope of the reference claim falls within the scope of the examined claim so that the claim under examination is anticipated by the reference claim. MPEP § 804 (II)(B)(1).

In this case, independent claim 1 of the present application fails to recite major elements of the method of independent claim 8 of the ‘242 application. Independent claim 8 of the ‘242 application states that the method includes “introducing into the feedstock an alcohol with a carbon number ranging from 1 to 34 carbons, the alcohol selected from the group consisting of a straight chain alcohol, a branched chain alcohol, any combination of straight chain alcohols, any combination of branched chain alcohols, and any combination thereof.... wherein the enzymatically transesterified product is adapted to produce a finished product having a certain formula that has a viscosity that substantially matches a viscosity of a finished product having the same certain formula comprising chemically catalyzed transesterified wax esters.” Clearly, the claim 1 of the present application does not anticipate the claim under examination, as the

claim 1 does not disclose the element of “introducing into the feedstock an alcohol with a carbon number ranging from 1 to 34 carbons, the alcohol selected from the group consisting of a straight chain alcohol, a branched chain alcohol, any combination of straight chain alcohols, any combination of branched chain alcohols, and any combination thereof...” as disclosed in Claim 8. This is not a trivial step, as this step is not disclosed in the specification of the present application, which is why the ‘242 application is a continuation-in-part of the present application.

Since the independent claims are not anticipated by the claims of the ‘242 application, the next step in the analysis is to determine whether the independent claims in the present application would be “an obvious variation of the invention defined in the claim of a patent...” MPEP § 804 (II)(B)(2)(a). The disclosure of the present application in this analysis cannot be used as prior art.

It would not be obvious to one skilled in the art to introduce an alcohol into the feedstock before the contacting the feedstock with the lipase because it is not fundamentally obvious to conduct a reaction adding an additional step to the reaction. No person of ordinary skill would be led to add the step of adding an alcohol to the feedstock of claim 1. There is simply no reason to add an additional step suggested in Claims 1-7. Furthermore, the addition of the alcohol in Claim 8 of the ‘242 application produced unexpected results as described at least in para. [0075]-[0076] of that application because the addition of alcohol to the feedstock prior to transesterification unexpectedly results in a change in viscosity. Because adding alcohol to the feedstock yields unexpected results, the instant application is clearly not an obvious variation of what is claimed in the present application. Furthermore, the ‘242 application is a continuation-in-part application and claim 8 is drawn to the newly added subject matter, making an obviousness type double patenting rejection even more unusual, given that the Applicant could not claim the subject matter of claim 8 in the present application in the first place (this obviates the issue of unjustifiable extension of patent term). The Examiner’s provisional rejection of claim 8 for obviousness-type nonstatutory double patenting is clear error, and the Applicant respectfully requests that it be withdrawn.

Dependent claims 9-14 are allowable for, among other reasons, depending from otherwise allowable independent claim 8.

Rejections under 35 U.S.C. 101

Claim 1-7 were rejected under 35 U.S.C. 101 as drawn to non-statutory subject matter for attempting to claim a product of nature.

35 U.S.C. 101 sets for a subject matter eligibility requirement: “Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefore, subject to the conditions and requirements of this title.” In expounding on section 101, MPEP 2104 indicates as follows:

[A] claimed invention must fall within one of the four eligible categories of invention, i.e., process, machine, manufacture, or composition of matter, as these categories have been interpreted by the courts.

In MPEP 2106 there are two criteria given for making the subject matter eligibility determination: (1) the invention “must be directed to one of the four statutory categories,” and (2) the invention “must not be wholly directed to subject matter encompassing a judicially recognized exception.” The Examiner bears the initial burden of establishing a prima facie case of unpatentability under 101. MPEP 2106, citing *In re Oetiker*, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992).

The First Step

The first step is to determine whether the invention is directed to one of the four statutory categories. One of these categories set forth in section 101 is a “process.” “The term ‘process’ means process, art, or method, and includes a new use of a known process, machine, manufacture, composition of matter, or material.” See MPEP 2106

The Second Step

The second step is to determine whether the claim is wholly directed to subject matter encompassing a judicially recognized exception, and this step has been further delineated into two sub-steps.

Step 2A

First, one of the judicially recognized exceptions is a claim directed to an “product of nature.” *Alice Corp. Pty. Ltd. v. CLS Bank Int’l*, 573 U.S. ___, 134 S. Ct. 2347, 2354, 110 USPQ2d 1976, 1980 (2014) (citing *Association for Molecular Pathology v. Myriad Genetics, Inc.* 569 U.S. ___, 133 S. Ct. 2107, 2116, 106 USPQ2d 1972, 1979 (2013)). The first sub-step of Step 2, which has been called Step 2A by the 2014 Interim Guidance on Patent Subject Matter Eligibility (Federal Register Vol. 79, No. 241, p. 74621), is to determine whether the claim is directed to an abstract idea. The 2014 Interim Guidance indicates, correctly, that if the claim is not directed to an product of nature, the claim is subject matter eligible and no further inquiry is required (in other words, the Examiner does not proceed to Step 2B). 2014 Interim Guidance p. 74621-74622, citing *Alice Corp.*

Finding that a claim is “directed to a patent ineligible concept” requires more than merely showing that the claim “involves” a patent ineligible concept, because “essentially every routinely patent-eligible claim involving physical products and actions involves a law of nature and/or natural phenomenon.” *Enfish, LLC v. Microsoft Corp.*, Fed. Cir. 2015-1244, p. 10. It requires more than a showing that the invention can run on a general-purpose computer. *Enfish*, p. 16. The *Enfish* court warned against describing a claim at “a high level of abstraction and untethered from the language of the claim” when determining the focus of the claimed invention. *Enfish*, p. 14.

Step 2B

If the claim is directed to an product of nature, then the Examiner proceeds to step 2B, which is to determine whether the claim recites additional elements that amount to “significantly more” than the product of nature itself. 2014 Interim Guidance p. 74621-74622, citing *Alice Corp.* While products of nature are not subject matter eligible, “methods and

products employing abstract ideas [and correspondingly, products of nature] . . . to perform a real-world function may well be.” MPEP 2106. The “claim as a whole” must be analyzed to determine whether it “amounts to significantly more” than an abstract idea or product of nature. MPEP 2106, citing *Alice Corp.*, 134 S. Ct. at 2357, 110 USPQ2d at 1981. “This analysis considers whether the claim as a whole is for a particular application of an abstract idea [or product of nature] . . . as opposed to the abstract idea [or product of nature] . . . itself.” MPEP 2106, citing *Mayo Collaborative Serv. V. Prometheus Labs., Inc.*, 566 U.S. ___, 132 S. Ct. 1289, 1293-94, 101 USPQ2d 1961, 1965-66 (2012) (citing *Diehr*, 450 U.S. at 187, 209 USPQ at 7), emphasis added.

Further interim guidance was provided in July 2015 Updated on Subject Matter Eligibility, noticed in Federal Register Vol. 80, No. 146, p. 45429, and available online at the USPTO website at <http://www.uspto.gov/sites/default/files/documents/ieg-july-2015-update.pdf>. Additional guidance was provided in May 2016 Update: Memorandum – Formulating a Subject Matter Eligibility Rejection and Evaluating the Applicant’s Response to a Subject Matter Eligibility Rejection, noticed in Federal Register Vol. 81, no. 88, p. 27381, available online at the USPTO website at <http://www.uspto.gov/sites/default/files/documents/ieg-may-2016-memo.pdf>. Additional guidance was provided in Memorandum – Recent Subject Matter Eligibility Decisions (*Enfish, LLC v. Microsoft Corp.* and *TLI Communications LLC v. A.V. Automotive, LLC*), issued May 19, 2016 and available online at the USPTO website at http://www.uspto.gov/sites/default/files/documents/ieg-may-2016_enfish_memo.pdf.

Independent Claim 1

The Examiner has not established a prima facie case of subject matter ineligibility of claim 1 under 35 U.S.C. 101 by failing to show under Step 2A that the claim, as a whole, in light of the specification, is “directed” to a product of nature.

The Examiner has not considered the claim “as a whole” but instead has only described the claim at a “high level of abstraction and untethered from the language of the claim.”

While it is true that both jojoba oil and lipase enzymes are found in nature, the reaction of these two components is not a process that would ever be found occurring in nature. This lipase enzyme has not been shown by the Examiner to be naturally present in the jojoba plant and used to break down jojoba oil in the jojoba plant itself. The introduction of an enzyme to break down fats, lipase, to an oil derived from plants only happens intentionally and not spontaneously in nature. If the mere addition of two naturally occurring chemical products found separately in nature to create a product therefrom is a product of nature and fundamentally unpatentable statutory subject matter, then all products of presently chemically catalyzed reactions involving platinum, palladium, rhodium, or any other naturally occurring element are likewise be all unpatentable products of nature. This is clearly a ridiculous conclusion. The claimed method in independent claim 1 does not occur in nature; correspondingly, the product formed using the claimed method does not exist in nature either.

Even the process of extracting oil from a plant or animal is not a natural process. Jojoba oil is extracted from the seed of the plant. To extract oil from the seed, the seed has to be pressed under high pressure or weight, at the very least, and such extraction of the oil does not occur naturally without human intervention. There is no creature in nature that extracts oil from the jojoba seed. The regular process of extracting oil from the jojoba seed goes further than pressing and includes leaching with a solvent such as hexane, benzene, petroleum ether, liquid carbon dioxide and the like. Even with two presses and a leaching process only 50% of the oil available in the seed is extracted. To say that this is a process that occurs naturally is absurd.

Further, in the applicant's specification the oil is then treated with a lipase enzyme to process the wax esters from the jojoba oil (and other wax ester containing compounds). Lipase enzymes are used in the reactions as described in the specification are from a variety of different organisms such as bacteria, fungi, and the like. These described organisms that are natural would not spontaneously react with oils in nature to transesterify the feedstock as described in the application. Many of these organisms are not found in the same ecosystem

on the same continent as a jojoba plant. Clearly, using lipase enzymes from these organism cannot happen naturally in nature, but only using human intervention.

Bluntly put, it is impossible for the claimed process or the claimed product to be formed using any naturally occurring material or using any naturally used method. Only human intervention and processing make it possible for the process or the product to be carried out and formed. This is not the antithesis of a product of nature as defined by case law.

Even if, for the sake of argument, the process as defined by the claims was determined to be a product of nature using Step 2B of the analysis is it clear that the process outlined in the claims amounts to significantly more than a product of nature. The product produced by this product has claimed properties different from the raw oil of jojoba plants is claimed to have a higher oxidative stability index than that of the feedstock products. This property of the product, which is a result of the claimed indicates that the claimed method forms more than merely a naturally occurring product. Both the claimed process and the claimed product therefore are significantly more than a product of nature. For at least these reasons the process outlined in claim 1 amounts to significantly more than a product of nature and/or the claimed process is significantly more than the product of nature itself.

Accordingly, Applicant respectfully requests the non-statutory subject matter rejection of claims 1-7 be withdrawn.

Rejections under 35 U.S.C. 103

Claims 1-5 were rejected under 35 U.S.C. 103 as being unpatentable over Compton et al. (WO 2001/72683, hereinafter “Compton”), in light of Kodali et al. (U.S. Patent Pub. No. 2005/0176597, hereinafter “Kodali”). Applicant respectfully traverses this rejection and requests reconsideration of the claims. Claims 6-7 were rejected under 35 U.S.C. 103 as being unpatentable over Compton, in light of Kodali, and further in view of Brown et al. (WO2005061686, hereinafter “Brown”). Applicant respectfully traverses this rejection and requests reconsideration of the claims.

Referring to the legal standards set forth in Appendix A, Applicant observes that the Examiner has not *explicitly* stated which of the obviousness rationales endorsed in *KSR International Co. v. Teleflex Inc.* 550 U.S. 398, 127 S.Ct. 1727, 167 L.Ed.2d 705 (2007) are being used. The Applicant believes the rationale being used is A/B/C:

“(A) Combining prior art elements according to known methods to yield predictable results;

(B) Simple substitution of one known element for another to obtain predictable results;

(C) Use of known technique to improve similar devices (methods, or products) in the same way. . .”

MPEP § 2141(II), (III) and 72 Federal Register 57527 (October 10, 2007).

Independent Claim 1

Claim 1 was rejected under 35 U.S.C. 103(a) as being unpatentable over Compton in view of Kodali. In making the 103(a) rejection of claim 1 the Examiner argues, on p. 9 of the 11/30/18 OA, that Compton in combination with Kodali discloses a method for enzymatically transesterifying wax esters in a feedstock where the product has a greater OSI than the OSI of the feedstock. The Examiner correctly states that Compton is silent regarding the oxidative stability index (OSI) meaning that nowhere in the reference is the OSI of the feedstock mentioned. To remedy this, the Examiner relies on Kodali and argues on p. 10 of the 11/30/18 OA, that Kodali “teaches a method to determine oxidative stability of the transesterified product (Page 4, Paragraph 0046).” The Examiner further argues that Kodali discloses a “transesterified product made from an oil has greater OSI than the feedstock oil when both have same level of antioxidants because when an oil is made by transesterification.” This is an incorrect reading of Kodali. Kodali does not disclose a method for enzymatic transesterification of wax esters. In response to this argument from the previous response, the Examiner argues on pg. 16 of the 11/30/17 OA, that Kodali was “included merely to demonstrate OSI” because “enzymatic transesterification and differences between non-lipase transesterification and lipase-mediated transesterification” had already been established. This argument still does not make the claim obvious in view of the combination of references

because it is axiomatic, in the chemical arts which are regarded as unpredictable, different methods of chemical reactions are not guaranteed to produce products with the same properties. Enzymatic transesterification and chemical transesterification are different processes which are not used in the same way and do not result in the same product. This fact has been amply demonstrated from the experimental data presented in the specification of the present application. Therefore, it would not be obvious to take a reference that uses an enzymatic process that fails to disclosed the claimed property of the products and combine it with a reference that allegedly disclosed the claimed property of a product formed through a different method—chemical catalysis. The unpredictability of the chemical arts clearly dictates there is no way to predict the result of the Examiner’s proposed combination.

The Examiner further argues that para. 0047 of Kodali teaches that the “OSI of the transesterified product can be enhanced by minimizing tocopherol loss during transesterification.” While Kodali mentions minimizing the loss of tocopherols during the reaction, Kodali specifically teaches that this is done by ensuring that the transesterified product is “formulated to have the same level of antioxidants.” Kodali, para. 0047. This means that when the OSI of the product of Kodali is actually measured, the product has had the antioxidant level adjusted post reaction to ensure the antioxidant level is the same as that of the feedstock. This is the complete opposite of what Applicant has observed. Applicant’s claims are directed toward enzymatic transesterification, which surprisingly results in the enzymatically transesterified product having a greater OSI than the feedstock without the addition of or adjustment of the antioxidant levels to the final product, see at least para. [0056] of Applicant’s application. This is a completely unexpected result—particularly in view of this teaching of Kodali. Not only did the OSI not decrease (as one might expect by preserving the natural tocopherols), the OSI unexpectedly increased.

Because Applicant claims a process of enzymatically transesterifying a feedstock which unexpectedly results in a transesterified product having a higher OSI than the feedstock, claim 1 is not obvious in view of the combination of Compton and Kodali, which discloses raising the OSI of chemically transesterified product primarily by adjusting the antioxidant level at the

end of the reaction and using polyols. Applicant respectfully requests that the obviousness rejection of claim 1 be withdrawn.

Dependent claims 2-7

Dependent claims 2-7 are allowable for, among other reasons, depending from allowable claim 1.

Specifically, claims 5-7 are directed towards use of jojoba wax esters as the feedstock. The use of jojoba oil as a feedstock unexpectedly increases the OSI of the enzymatically transesterified product to a level significantly higher than the OSI of the feedstock. The physical properties of jojoba oil, such as its long carbon chain, plays a role in the increase in OSI, as explained in at least para. [0072] of Applicant's application. On the other hand, the reactants used in Kodali are short chain fatty acid esters and triacylglycerol (a polyol) including vegetable oil. The structure of the reactants in Kodali is critical to obtaining the increase in OSI, as is adding antioxidants to the final transesterified product as disclosed in Kodali. The Examiner did not address that Kodali specifically uses different reactants to arrive at the desired results, i.e. Kodali discloses short chain fatty acids while Applicant's process calls for long carbon chains. As previously explained, the reactants and the methods used to make products are very important in the chemical art and result in unpredictable differences. One of ordinary skill would not assume that that they could use the method of Kodali with the jojoba long carbon chains of Applicant's disclosure and end up with a product with the claimed OSI result. Furthermore, para. 0047 of Kodali still mentions the use of antioxidants to increase the oxidative stability of Kodali. This is counter to Applicant's method.

In the new rejection of Claim 6-7, the Examiner maintains that using the hydrogenated jojoba wax ester of Brown with the method of Compton combined with Kodali would make Applicant's method obvious. This is incorrect. As previously described, based on the teachings of Kodali, in order to raise the OSI, a chemical transesterification process has to take place with specific reactants, **i.e. a short chain fatty acid and triacylglycerol and then the antioxidants destroyed by the chemically catalyzed reaction need to be added back to the**

finished product. Because Kodali teaches that the specific reactants result in the increase in OSI, one of ordinary skill would be lead away from using the process of Kodali to increase the OSI of jojoba oil. Indeed, Kodali teaches away from Compton and Brown as it teaches away from using jojoba oil, which does not contain polyols, as a reactant. Because of this, the obviousness rejections of claims 6-7 are in error.

Applicant respectfully requests that the obviousness rejections of claims 2-7 be withdrawn.

Regarding Doctrine of Equivalents

Applicant hereby declares that any amendments herein that are not specifically made for the purpose of patentability are made for other purposes, such as clarification, and that no such changes shall be construed as limiting the scope of the claims or the application of the Doctrine of Equivalents.

CONCLUSION

Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

If any fees, including extension of time fees or additional claims fees, are due as a result of this response, please charge Deposit Account No. 60-1853. This authorization is intended to act as a constructive petition for an extension of time, should an extension of time be needed as a result of this response. The examiner is invited to telephone the undersigned if this would in any way advance the prosecution of this case.

Respectfully submitted,

Date: 2/28/2018

By: /Adam Stephenson/
Adam R. Stephenson
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Appendix A:

Legal Standard for Finding Obviousness under 35 U.S.C. 103

The most recent guidelines published by the USPTO regarding the implementation of the Supreme Court's decision in *KSR International Co. v. Teleflex Inc.* 550 U.S. 398, 127 S.Ct. 1727, 167 L.Ed.2d 705 (2007) state that:

An invention that would have been obvious to a person of ordinary skill at the time of the invention is not patentable. See 35 U.S.C. 103(a). As reiterated by the Supreme Court in *KSR*, the framework for the objective analysis for determining obviousness under 35 U.S.C. 103 is stated in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966). Obviousness is a question of law based on underlying factual inquiries. The factual inquiries enunciated by the Court are as follows:

- (A) Determining the scope and content of the prior art;
- (B) Ascertaining the differences between the claimed invention and the prior art; and
- (C) Resolving the level of ordinary skill in the pertinent art...

Office personnel fulfill the critical role of fact-finder when resolving the *Graham* inquiries... When making an obviousness rejection, Office personnel must therefore ensure that the written record includes findings of fact concerning the state of the art and the teachings of the references applied. In certain circumstances, it may also be important to include explicit findings as to how a person of ordinary skill would have understood prior art teachings, or what a person of ordinary skill would have known or could have done. Factual findings made by Office personnel are the necessary underpinnings to establish obviousness...

In short, the focus when making a determination of obviousness should be on what a person of ordinary skill in the pertinent art would have known at the time of the invention, and on what such a person should reasonably have been able to do in view of that knowledge. This is so regardless of whether the source of that knowledge and ability was documentary prior art, general knowledge in the art, or common sense...

The key to supporting any rejection under 35 U.S.C. 103 is the clear articulation of the reason(s) why the claimed invention would have been obvious. The Supreme Court in *KSR* noted that the analysis supporting a rejection under 35 U.S.C. 103 should be made explicit. The Court quoting *In re Kahn*, 441 F.3d 977, 988, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006) stated

that “[R]ejections on obviousness cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.”
KSR. . . Exemplary rationales that may support a conclusion of obviousness include:

(A) Combining prior art elements according to known methods to yield predictable results;

(B) Simple substitution of one known element for another to obtain predictable results;

(C) Use of known technique to improve similar devices (methods, or products) in the same way;

(D) Applying a known technique to a known device (method, or product) ready for improvement to yield predictable results;

(E) “Obvious to try”-choosing from a finite number of identified, predictable solutions, with a reasonable expectation of success;

(F) Known work in one field of endeavor may prompt variations of it for use in either the same field or a different one based on design incentives or other market forces if the variations are predictable to one of ordinary skill in the art;

(G) Some teaching, suggestion, or motivation in the prior art that would have led one of ordinary skill to modify the prior art reference or to combine prior art reference teachings to arrive at the claimed invention. MPEP § 2141(II), (III) and 72 Federal Register 57527 (October 10, 2007).

Electronic Acknowledgement Receipt

EFS ID:	31926821
Application Number:	14578075
International Application Number:	
Confirmation Number:	2053
Title of Invention:	Processes and Systems for Catalytic Manufacture of Wax Ester Derivatives
First Named Inventor/Applicant Name:	Jeff Addy
Customer Number:	93756
Filer:	Adam Reid Stephenson
Filer Authorized By:	
Attorney Docket Number:	FloraTech002
Receipt Date:	28-FEB-2018
Filing Date:	19-DEC-2014
Time Stamp:	23:48:55
Application Type:	Utility under 35 USC 111(a)

Payment information:

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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	OAR3.pdf	193847	no	18
			0c2f1913eb6c3d8944f816a180245f880f5e00ce		

Warnings:

Vantage Exhibit 1002

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CARGILL 00000436

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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 14/578,075	Filing Date 12/19/2014	☐ To be Mailed
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ENTITY: ☐ LARGE ☒ SMALL ☐ MICRO**APPLICATION AS FILED – PART I**

FOR	NUMBER FILED (Column 1)	NUMBER EXTRA (Column 2)	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 \$ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X \$ =	
☐ 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	(Column 1)	(Column 2)	(Column 3)	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)
	02/28/2018	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR			
	Total (37 CFR 1.16(i))	* 7	Minus	** 20 = 0	X \$50 =	0
	Independent (37 CFR 1.16(h))	* 1	Minus	*** 3 = 0	X \$230 =	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)	(Column 2)	(Column 3)	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)
		CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR			
	Total (37 CFR 1.16(i))	*	Minus	** =	X \$ =	
	Independent (37 CFR 1.16(h))	*	Minus	*** =	X \$ =	
	☐ 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.

** 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".

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SLIE
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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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Page 413 of 1215

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	14578075
	Filing Date	2014-12-19
	First Named Inventor	Jeff Addy
	Art Unit	1657
	Examiner Name	SRIVASTAVA, KAILASH C
	Attorney Docket Number	FLORATECH002

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**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	14578075
Filing Date	2014-12-19
First Named Inventor	Jeff Addy
Art Unit	1657
Examiner Name	SRIVASTAVA, KAILASH C
Attorney Docket Number	FLORATECH002

1	JACKSON, Michal A., Isolation of Long-chain Aliphatic Alcohols From Beeswax Using Lipase-catalyzed Methanolysis in Supercritical Carbon Dioxide, Journal of Supercritical Fluids, Vol. 37, 2006, pages 173-177.
2	LEI, Qiong, et al., Functional Monoesters of Jojoba Oil can be Produced by Enzymatic Interesterification: Reaction Analysis and Structural Characterization, European Journal of Lipid Science and Technology, Vol. 117, December 22, 2014, pages 630-636.
3	Extended European Search Report, European Patent Application No. 15871261.2, June 8, 2018, 9 pages.

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EXAMINER SIGNATURE

Examiner Signature		Date Considered	
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**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	14578075
Filing Date	2014-12-19
First Named Inventor	Jeff Addy
Art Unit	1657
Examiner Name	SRIVASTAVA, KAILASH C
Attorney Docket Number	FLORATECH002

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	/Adam Stephenson/	Date (YYYY-MM-DD)	2018-07-05
Name/Print	Adam R. Stephenson	Registration Number	58349

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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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:	33093970
Application Number:	14578075
International Application Number:	
Confirmation Number:	2053
Title of Invention:	Processes and Systems for Catalytic Manufacture of Wax Ester Derivatives
First Named Inventor/Applicant Name:	Jeff Addy
Customer Number:	93756
Filer:	Adam Reid Stephenson/Dee Wilson
Filer Authorized By:	Adam Reid Stephenson
Attorney Docket Number:	FloraTech002
Receipt Date:	05-JUL-2018
Filing Date:	19-DEC-2014
Time Stamp:	13:47:33
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	no
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File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Information Disclosure Statement (IDS) Form (SB08)	SIDS002.pdf	1035316	no	4
			4e2d6787fb42150055018f16213f7f5e18959934		

Warnings:

Vantage Exhibit 1002

Page 418 of 1215

CARGILL 00000443

Information:					
A U.S. Patent Number Citation or a U.S. Publication Number Citation is required in the Information Disclosure Statement (IDS) form for autoloading of data into USPTO systems. You may remove the form to add the required data in order to correct the Informational Message if you are citing U.S. References. If you chose not to include U.S. References, the image of the form will be processed and be made available within the Image File Wrapper (IFW) system. However, no data will be extracted from this form. Any additional data such as Foreign Patent Documents or Non Patent Literature will be manually reviewed and keyed into USPTO systems.					
2	Non Patent Literature	NPL1a.pdf	839500	no	6
			607d43492264c828a73af827f14842da753463f9		
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3	Non Patent Literature	NPL2a.pdf	1407582	no	8
			e8ef09522328edb3a820c984f3ad78dd9e99b03b		
Warnings:					
Information:					
4	Other Reference-Patent/App/Search documents	NPL3a.pdf	877799	no	9
			26a002bd7be08795d1a86327f864ae1315936a9c		
Warnings:					
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			Total Files Size (in bytes):	4160197	
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/578,075	12/19/2014	Jeff Addy	FloraTech002	2053
93756	7590	08/06/2018		
IPTechLaw 8350 E Raintree Dr., Ste 245 Scottsdale, ARIZONA 85260 UNITED STATES OF AMERICA			EXAMINER SRIVASTAVA, KAILASH C	
			ART UNIT	PAPER NUMBER
			1657	
			NOTIFICATION DATE	DELIVERY MODE
			08/06/2018	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):

adam@iptech.law
ipdocket@iptech.law

Office Action Summary**Application No.**

14/578,075

Applicant(s)

Addy et al.

Examiner

KAILASH C SRIVASTAVA

Art Unit

1657

AIA Status

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 07/05/2018.

☐ 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) 1-7 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) 1-7 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)

3) ☐ Interview Summary (PTO-413)

Paper No(s)/Mail Date ____.

2) ☒ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b)

4) ☐ Other: ____.

Paper No(s)/Mail Date 07/05/2018.

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.

Response to Remarks

Applicants' claims and remarks, filed 02/28/2018, are acknowledged. Applicants' arguments have been fully considered. The following rejections and/or objections are either reiterated or newly applied. They constitute the complete set presently being applied to the instant application. Rejections and/or objections not reiterated from the previous office actions have been withdrawn.

Claims Status

According to response filed 02/28/2018, claims 8-20 are cancelled, claims 1-7 are under examination and examined on merits.

Withdrawals

Considering amendments and remarks filed 02/28/2018, following rejections in office action with non-final rejection mailed 11/30/2017 are hereby withdrawn.

Non-statutory obviousness -type double patenting (ODP) rejection of claims 1-7 over claims 8-14 of co-pending US patent application number (i.e., USSN) 14/841, 242 to Addie et al. This is because when the analysis of said claims 1-7 is performed in accordance with M.P. E.P. § 804 (II) (B), said claims 1-7 in the instant application are neither anticipated; nor are rendered obvious over said claims 8-14 of said USSN 14/841, 242.

Rejection of claims 1-7 under 35 U.S.C. §101 as drawn to non-statutory subject matter because in nature a feedstock comprising wax esters could not be contacted with lipase enzyme.

Indefiniteness rejection of claims 1-7 under 35 U.S.C. §112(b) as being indefinite to recite the results of a method step rather than the method itself after a “wherein” clause. Applicants have recited the method steps in first three lines of said method in claim 1.

Obviousness rejection of claims 1-5 under 35 U.S.C. §103(a) over combined teachings of **Compton et al** (WO2001/72683 A1) in view of **Kodali et al** (US Patent 2005/0176597 A1). This is because teachings from Compton (i.e., Compton et al.) cannot be combined with those of Kodali (i.e., Kodali et al.) since Compton teaches enzymatic transesterification of wax esters, while Kodali *al-beit* teaches transesterification of wax esters, but by applying chemical catalysts.

Obviousness rejection of claims 6-7 under 35 U.S.C. §103(a) over combined teachings of **Compton** (i.e., Compton et al., WO2001/72683 A1) in view of **Kodali** (i.e., Kodali et al., US Patent 2005/0176597 A1) as applied to claims 1-5 and further in view of **Brown** (i.e., Brown et al period, WO 2005061686 A1). This is because teachings from Compton (i.e., Compton et al.) cannot be combined with those of Kodali (i.e., Kodali et al.) since Compton teaches enzymatic transesterification of wax esters, while Kodali *al-beit* teaches transesterification of wax esters, but by applying chemical catalysts. In said process, the OSI of the formed product is reduced and is compensated for by addition of external antioxidants. Accordingly, Kodali teaches away from the teachings of each of Compton and Brown.

Information Disclosure Statement (IDS)

IDS document(s) filed 07/05/2018 is/are in compliance with the provisions of 37 C.F.R. §1.97. Accordingly, the IDS document(s) has/have been fully considered by the examiner.

Art Rejections

In the event the determination of the status of the application as subject to AIA 35 U.S.C. §§102 and 103 (or as subject to pre-AIA 35 U.S.C. §102 and §103) is incorrect, any correction of the statutory basis for the rejection will not be considered a new ground of rejection if the prior art relied upon, and the rationale supporting the rejection, would be the same under either status.

35 U.S.C. §102 Rejection

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 1-2 and 4 are rejected under 35 U.S.C. §102(a) (1) as anticipated by Steinke (i.e., Steinke et al. 2000. Lipase-Catalyzed Alcoholysis of Crambe Oil and Camelina Oil for the Preparation of Long-Chain Esters. JAOCS, Volume 77, Number 4, Pages 361-366).

Given the broadest reasonable interpretation, claims 1-2 and 4 are examined to the extent that said claims are drawn as stated in claim 1 to a transesterification process of wax esters comprising providing wax esters comprising feedstock in contact with a

lipase enzyme to a trans-esterified product having a higher oxidative stability index (OSI) in the trans-esterified product than the OSI of the feedstock. Said method further requires that the trans-esterified product is not comprised of methyl esters as in claim 2. Claim 4 requires the process wherein the feedstock further comprises a skin conditioning agent, a volatile compound and catalytically trans-esterifying wax esters in the feedstock with the lipase without one of removing and degrading the skin conditioning agent and a volatile compound in the feedstock.

Regarding claims 1, 2 and 4, Steinke teaches a process of lipase-catalyzed alcoholysis of crambe oil and camelina oil with long-chain alcohols, such as oleyl alcohol and alcohols obtained from crambe oil and camelina oil (See, page 361, right column, lines 1-10). Refined oils from crambe seeds and camelina seeds were provided (See, page 361, right column, EXPERIMENTAL PROCEDURES, Materials, Lines 17-41). The seeds are encompassed by the claim term "feedstock". Steinke also teaches that this process is for preparation of long-chain esters (see Title) and bioesters for cosmetics (See, page 361, right column, Lines 6-15). Thus, the trans-esterified product comprises no methyl esters as required in instant claim 2; and, as bioesters for cosmetics, the feedstock would necessarily further comprise a skin conditioning agent and a volatile compound that are not removed or degraded as required in instant claim 4. The wherein clause in claim 1 reciting OSI of the trans-esterified product being greater than an OSI of the feedstock is a property that would necessarily be presented in the process as taught by Steinke because the prior art method steps are the same as recited in the instant claims (See e.g., *In re Best*, 195 USPQ 430, 433-CCPA 1977).

Therefore, the reference is deemed to anticipate instant claims 1-2 and 4.

Claims 1-2 and 4 are rejected under 35 U.S.C. §102(a) (1) as anticipated by Gunawan (i.e., Gunawan et al., 2004. Lipase-Catalyzed Synthesis of Palm-Based Wax Esters. Journal of Oleo Science 2004, Volume 53, number 10, Pages 471-477).

Given the broadest reasonable interpretation, claims 1-2 and 4 are examined to the extent that said claims are drawn as stated in claim 1 to a transesterification process of wax esters comprising providing wax esters comprising feedstock in contact with a lipase enzyme to a trans-esterified product having a higher oxidative stability index (OSI) in the trans-esterified product than the OSI of the feedstock. Said method further requires that the trans-esterified product is not comprised of methyl esters as in claim 2. Claim 4 requires the process wherein the feedstock further comprises a skin conditioning agent, a volatile compound and catalytically trans-esterifying wax esters in the feedstock with the lipase without one of removing and degrading the skin conditioning agent and a volatile compound in the feedstock.

Regarding claims 1, 2 and 4, Gunawan teaches a process of synthesis of long chain wax esters by alcoholysis of palm oil with oleyl alcohol using Lipozyme (See, Abstract, Lines 3-4) Lipozyme is an immobilized lipase from *Mucor miehei* (Page 471, Left hand Column, Line 2). Gunawan also teaches this process is for preparation of long-chain wax esters (see Abstract), which are important ingredients in the cosmetic formulations (See, Page 471, left column, second paragraph), so the trans-esterified product comprises no methyl esters and, as ingredients in cosmetic formulations and pharmaceuticals (See, Page 471, Left Column, Lines 36-38), the feedstock would necessarily further comprise a skin conditioning agent and a volatile compound that are not removed or degraded. The wherein clause in claim 1 reciting that an oxidative stability

index (OSI) of the trans-esterified product being greater than an OSI of the feedstock is a property that would necessarily be presented in the product from the process as taught by Gunawan because the prior art method steps are the same as recited in the instant claims (See e.g., *In re Best*, 195 USPQ 430, 433-CCPA 1977).

Therefore, the reference is deemed to anticipate instant claims 1-2 and 4.

Claim Rejections - 35 U.S.C. §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) 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 of this title, 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.

This application currently names joint inventors. In considering patentability of the claims under pre-AIA 35 U.S.C. §103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation

under 37 C.F.R. §1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of pre-AIA 35 U.S.C. §103(c) and potential pre-AIA 35 U.S.C. §§102(e), (f) or (g) prior art under pre-AIA 35 U.S.C. §103(a).

Claims 3 and 5-7 are rejected under 35 U.S.C. §103 as obvious over **Steinke** (i.e., Steinke et al. 2000. Lipase-Catalyzed Alcoholysis of Crambe Oil and Camelina Oil for the Preparation of Long-Chain Esters. JAOCS, Volume 77, Number 4, Pages 361-366) and **Gunawan** (i.e., Gunawan et al., 2004. Lipase-Catalyzed Synthesis of Palm-Based Wax Esters. Journal of Oleo Science 2004, Volume 53, number 10, Pages 471-477) in view of **Aluyor** (i.e., Aluyor et al. 2008. The use of antioxidants in vegetable oils – A review. African Journal of Biotechnology Volume 7, Pages 4836-4842).

Given the broadest reasonable interpretation, claim 5 is drawn to a method, wherein the wax esters of feedstock are jojoba wax esters. Claim 6 is drawn to a method, wherein the wax esters of jojoba further comprise hydrogenated wax esters. Claim 7 is drawn to a process wherein a dropping point of the trans-esterified product is greater than a dropping point of the feedstock the dropping point of the trans-esterified product increases as a percentage of the hydrogenated euro by wax esters in the feedstock increases.

Regarding claims 5-7, depending from claim 1 from which claims 5-7 depend; Steinke's teachings and those of Gunawan have already been discussed *supra*.

Relevant to claims 5-7, Steinke teaches that the aim of the instantly claimed process is to produce long-chain esters and to prepare wax esters as substitutes for jojoba oil (See, paragraph bridging the two columns on p. 361 and FIG. 5). Gunawan

teaches that wax esters are important ingredients in the cosmetic formulations, in pharmaceuticals, lubricants, plasticizers and polishes due to their unique property of having excellent wetting behavior but without the oily feeling. Wax esters can be extracted from animals and plant materials such as beeswax, sperm whale and jojoba oil. However, they are often too scarce or expensive (See the paragraph bridging the two columns on p. 471). Therefore, it would have been obvious to apply the technique of lipase-catalyzed synthesis of wax esters with oleyl alcohol to jojoba oil as explicitly suggested by both Steinke and Gunawan.

Regarding claim 3, neither Steinke nor Gunawan explicitly disclose that the feedstock comprises an antioxidant, however, Aluyor discloses that crude jojoba oil has good values of oxidative stability (See, page 4839, left column, last complete paragraph). As further evidenced by the instant specification ([0048] on p. 12-13), Jojoba oil derived from the seeds of the jojoba plant contains wax esters and other components that have been noted to be useful for various functions. These include steryl esters, sterols, and various hydrocarbons that can be useful as skin conditioning agents in cosmetics and personal care products. Antioxidants, like tocopherols, are also included, along with various volatile ingredients naturally present in the oil, which are volatile in comparison with the wax esters. The wax esters in jojoba oil generally vary between 34 and 48 carbons in length. Therefore, Steinke and Gunawan's suggestion of the applicability of their technique towards jojoba oil renders obvious the choice of jojoba feedstock, which inherently comprises an antioxidant. Since Gunawan and Steinke both disclose that the enzymatic (lipase-catalyzed) synthesis of wax esters offers mild reaction conditions (Gunawan p. 471, right column, middle passage;

Steinke p. 361, first sentence), their method would necessarily possess the property or beneficial result of not removing or degrading the antioxidant in the jojoba oil.

It would have been *prima facie* obvious to one of ordinary skill in the art before the effective filing date of the instantly claimed invention because of the reasons described in the previous paragraph. One of ordinary skill in the art would have had a reasonable expectation of success in arriving at the conclusion of combining teachings from each one of Steinke, Gunawan and Aluyor because the prior art methods are employing the same materials and steps as claimed instantly (See e.g., *In re Best*, 195 USPQ 430, 433-CCPA 1977). For these reasons, the claimed invention as a whole does not recite any new element, new function, or unpredictable result, and would have been *prima facie* obvious at the time it was made.

From the teachings of the references, it is apparent that one of ordinary skill in the art would have had a reasonable expectation of success in producing the claimed invention. Therefore, the invention as a whole was *prima facie* obvious to one of ordinary skill in the art before the effective filing date of the claimed invention, as evidenced by the references, especially in the absence of evidence to the contrary.

Conclusion

No Claims are allowed.

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KAILASH C SRIVASTAVA whose telephone number is

(571)272-0923. The examiner can normally be reached on M-Th 7:30 A.M. to 6:00 P.M. 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, LOUISE W HUMPHREY can be reached on 571-272-5543. 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 <http://pair-direct.uspto.gov>. 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.

/KAILASH C SRIVASTAVA/
Examiner, Art Unit 1657

<i>Notice of References Cited</i>	Application/Control No. 14/578,075	Applicant(s)/Patent Under Reexamination Addy et al.	
	Examiner KAILASH C SRIVASTAVA	Art Unit 1657	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
	A					
	B					
	C					
	D					
	E					
	F					
	G					
	H					
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	J					
	K					
	L					
	M					

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
*	U	Steinke et al. 2000. Lipase-Catalyzed Alcoholysis of Crambe Oil and Camelina Oil for the Preparation of Long-Chain Esters. JAOCS, Volume 77, Number 4, Pages 361-366. (Year: 2000)
*	V	Gunawan et al., 2004. Lipase-Catalyzed Synthesis of Palm-Based Wax Esters. Journal of Oleo Science 2004, Volume 53, number 10, Pages 471-477. (Year: 2004)
*	W	Aluyor et al. 2008. The use of antioxidants in vegetable oils – A review. African Journal of Biotechnology Volume 7, Pages 4836-4842. (Year: 2008)
	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. 14/578,075	Applicant(s)/Patent Under Reexamination Addy et al.
	Examiner KAILASH C SRIVASTAVA	Art Unit 1657

CPC - Searched*		
Symbol	Date	Examiner
Please see Partial text search in WEST appended hereto	3/20/2017	KCS
Please see Updated Partial text search in WEST appended hereto	10/19/2017	KCS
Please see Re-updated Partial text search in WEST appended hereto	06/23/2018	KCS

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner
Partial text search in WEST	Partial text search in WEST	3/20/2017	KCS
CPC	C12P7/6436 C11C3/003	3/20/2017	KCS
IPC	C12P7/64)	3/20/2017	KCS
USPC	435/134	3/20/2017	KCS
Updated Partial text search in WEST	Updated Partial text search in WEST	10/19/2017	KCS
CPC	C12P7/6436, C11C3/003	10/19/2017	KCS
IPC	C12P7/64	10/19/2017	KCS
USPC	435/134	10/19/2017	KCS
Re-updated Partial text search in WEST	Re-updated Partial text search in WEST	06/23/2018	KCS
CPC	C12P7/6436 C11C3/003 C11C3/10	06/23/2018	KCS
IPC	C12P7/64	06/23/2018	KCS
USPC	435/134	06/23/2018	KCS

	/KAILASH C SRIVASTAVA/ Examiner.Art Unit 1657
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<i>Search Notes</i> 	Application/Control No. 14/578,075	Applicant(s)/Patent Under Reexamination Addy et al.
	Examiner KAILASH C SRIVASTAVA	Art Unit 1657

* 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
Inventor name search in PE2E & PALMsearch in	3/1/2017	KCS
Assignee name search in PE2E & PALM	3/1/2017	KCS
Verified Application priority data in PE2E & PALM	3/1/2017	KCS
Partial Text Search in WEST:DWPI, EPAB, FPRS, JPAB, USOC, USPT according to search strtgry and terms in WEST search history appende hereto	3/20/2017	KCS
STN Search	09/20/2016	KCS
Updated Inventor name search in PE2E, WEST & PALM	10/19/2017	KCS
Updated Assignee name search in PE2E & PALM	10/19/2017	KCS
Reverified Application priority data in PE2E & PALM	10/19/2017	KCS
Updated Partial Text Search in WEST:DWPI, EPAB, FPRS, JPAB, USOC, USPT according to search strtgry and terms in WEST search history appende hereto	10/19/2017	KCS
14578075 Google Search Transesterification oil OI20171019	10/19/2017	KCS
Re-updated Inventor name search in PE2E, WEST & PALM	06/23/2018	KCS
Re-updated Assignee name search in WEST, PE2E & PALM	06/23/2018	KCS
Reverified Application priority data in WEST PE2E & PALM	06/23/2018	KCS
Updated Partial Text Search in WEST:DWPI, EPAB, FPRS, JPAB, USOC, USPT according to search strtgry and terms in WEST search history appende hereto	06/23/2018	KCS
Google Search	07/31/2018	KCS

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

	/KAILASH C SRIVASTAVA/ Examiner.Art Unit 1657
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WEST Search History for Application 14578075

Creation Date: 2018062300:58

Prior Art Searches

Query	DB	Hits	Op.	Plur.	Thes.	Date
(Wax esters) same (Lignocellulose or (Plant biomass) OR (jojoba oil))	PGPB, USPT	1328	ADJ	YES		03-20-2017
Lipase same transesterifi\$16	PGPB, USPT	1889	ADJ	YES		03-20-2017
enzymatic or enzymic or (enzyme mediated)	PGPB, USPT	332830	ADJ	YES		03-20-2017
(enzymatic or enzymic or (enzyme mediated)) same ((Wax esters) same (Lignocellulose or (Plant biomass) OR (jojoba oil)))	PGPB, USPT	5	ADJ	YES		03-20-2017
(enzymatic or enzymic or (enzyme mediated) same (Wax esters) same (Lignocellulose or (Plant biomass) OR (jojoba oil))) same (Lipase same transesterifi\$16)	PGPB, USPT	2	ADJ	YES		03-20-2017
(hydrogenated wax esters) same Jojoba	PGPB, USPT	0	ADJ	YES		03-20-2017
hydrogenated wax esters	PGPB, USPT	3	ADJ	YES		03-20-2017
(hydrogenated wax esters) same ((Wax esters) same (Lignocellulose or (Plant biomass) OR (jojoba oil)))	PGPB, USPT	0	ADJ	YES		03-20-2017
(Lipase same transesterifi\$16) same (enzymatic or enzymic or (enzyme mediated))	PGPB, USPT	527	ADJ	YES		03-20-2017
Jojoba	PGPB, USPT	22158	ADJ	YES		03-20-2017
(Jojoba) same (enzymatic or enzymic or (enzyme mediated))	PGPB, USPT	37	ADJ	YES		03-20-2017
(Jojoba same enzymatic or enzymic or (enzyme mediated)) same (Lipase same transesterifi\$16)	PGPB, USPT	2	ADJ	YES		03-20-2017
(Jojoba same enzymatic or enzymic or (enzyme mediated) same Lipase same transesterifi\$16) Or (enzymatic or enzymic or (enzyme mediated) same (Wax esters) same	PGPB, USPT	2	ADJ	YES		03-20-2017

(Lignocellulose or (Plant biomass) OR (jojoba oil)) same Lipase same transesterifi\$16)						
(Jojoba same enzymatic or enzymic or (enzyme mediated) same Lipase same transesterifi\$16 Or enzymatic or enzymic or (enzyme mediated) same (Wax esters) same (Lignocellulose or (Plant biomass) OR (jojoba oil)) same Lipase same transesterifi\$16) and ((C12P7/6436 C11C3/003).CPC. and (435/134).CCLS. or (C12P7/64).IPCR.)	PGPB, USPT	2	ADJ	YES		03-20-2017
(Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))	USOC, EPAB, JPAB, DWPI, FPRS	22891	ADJ	YES		03-20-2017
Lipase or transesterifi\$16	USOC, EPAB, JPAB, DWPI, FPRS	58231	ADJ	YES		03-20-2017
enzymatic or enzymic or (enzyme mediated)	USOC, EPAB, JPAB, DWPI, FPRS	100267	ADJ	YES		03-20-2017
hydrogenated wax esters	USOC, EPAB, JPAB, DWPI, FPRS	6	ADJ	YES		03-20-2017
Jojoba	USOC, EPAB, JPAB, DWPI, FPRS	7268	ADJ	YES		03-20-2017
((Jojoba) or ((Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)))) or (hydrogenated wax esters)	USOC, EPAB, JPAB, DWPI, FPRS	24581	ADJ	YES		03-20-2017
((Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters) and (Lipase or transesterifi\$16)	USOC, EPAB, JPAB, DWPI, FPRS	336	ADJ	YES		03-20-2017

((Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters) and (enzymatic or enzymic or (enzyme mediated))	USOC, EPAB, JPAB, DWPI, FPRS	1058	ADJ	YES		03-20-2017
((Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated)) and ((Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)))	USOC, EPAB, JPAB, DWPI, FPRS	1048	ADJ	YES		03-20-2017
((Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) and ((Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16)	USOC, EPAB, JPAB, DWPI, FPRS	65	ADJ	YES		03-20-2017
((Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16) and (hydrogenated wax esters)	USOC, EPAB, JPAB, DWPI, FPRS	0	ADJ	YES		03-20-2017
((Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16) and ((Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters)	USOC, EPAB, JPAB, DWPI, FPRS	65	ADJ	YES		03-20-2017
((Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16) and ((Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters)	USOC, EPAB, JPAB, DWPI, FPRS	65	ADJ	YES		03-20-2017

(Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters) and (Lipase or transesterifi\$16)						
("OSI") or ((oxidative stability) and index)	USOC, EPAB, JPAB, DWPI, FPRS	45405	ADJ	YES		03-20-2017
product and (Without and (methyl ester))	USOC, EPAB, JPAB, DWPI, FPRS	6253	ADJ	YES		03-20-2017
(product and (Without and (methyl ester))) and (((Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16) or ((Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16)) or ((Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters))	USOC, EPAB, JPAB, DWPI, FPRS	0	ADJ	YES		03-20-2017

((((Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16) or ((Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16)) or ((Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters))	USOC, EPAB, JPAB, DWPI, FPRS	65	ADJ	YES		03-20-2017
((((Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 or (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and	USOC, EPAB, JPAB, DWPI, FPRS	65	ADJ	YES		03-20-2017

Lipase or transesterifi\$16) or (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters)) and ((Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)))						
(((Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 or (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16) or (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) and ("OSI" or ((oxidative stability) and index))	USOC, EPAB, JPAB, DWPI, FPRS	0	ADJ	YES		03-20-2017
(((Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or	USOC, EPAB, JPAB,	0	ADJ	YES		03-20-2017

enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 or (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16) or (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) and (product and (Without and (methyl ester)))	DWPI, FPRS					
((hydrogenated wax esters) or (((Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 or (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and	USOC, EPAB, JPAB, DWPI, FPRS	65	ADJ	YES		03-20-2017

Lipase or transesterifi\$16) or (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters))) or (((Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 or (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16) or (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)))						
((hydrogenated wax esters) or (((Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or	USOC, EPAB, JPAB, DWPI, FPRS	65	ADJ	YES		03-20-2017

(Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 or (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16) or (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters)) or (((Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 or (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16) or (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and

Lipase or transesterifi\$16 and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)))						
((hydrogenated wax esters or (((Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 or (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 or (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters)) or (((Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 or (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) OR	USOC, EPAB, JPAB, DWPI, FPRS	65	ADJ	YES		03-20-2017

(jojoba oil))) or hydrogenated wax esters)) or (((Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 or (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16) or (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (product and (Without and (methyl ester)) or (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16)) and ((Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)))						
((hydrogenated wax esters or (((Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 or (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and	USOC, EPAB, JPAB, DWPI, FPRS	6	ADJ	YES		03-20-2017

enzymatic or enzymic or (enzyme mediated)
 and (Wax esters) or (Lignocellulose or (Plant
 biomass) OR (jojoba oil)) and (Jojoba or (Wax
 esters) or (Lignocellulose or (Plant biomass) OR
 (jojoba oil))) or hydrogenated wax esters and
 Lipase or transesterifi\$16 and (Jojoba or (Wax
 esters) or (Lignocellulose or (Plant biomass) OR
 (jojoba oil))) or hydrogenated wax esters and
 Lipase or transesterifi\$16) or (Jojoba or (Wax
 esters) or (Lignocellulose or (Plant biomass) OR
 (jojoba oil))) or hydrogenated wax esters and
 enzymatic or enzymic or (enzyme mediated)
 and (Wax esters) or (Lignocellulose or (Plant
 biomass) OR (jojoba oil)) and (Jojoba or (Wax
 esters) or (Lignocellulose or (Plant biomass) OR
 (jojoba oil))) or hydrogenated wax esters and
 Lipase or transesterifi\$16 and (Jojoba or (Wax
 esters) or (Lignocellulose or (Plant biomass) OR
 (jojoba oil))) or hydrogenated wax esters)) or
 (((Jojoba or (Wax esters) or (Lignocellulose or
 (Plant biomass) OR (jojoba oil))) or
 hydrogenated wax esters and enzymatic or
 enzymic or (enzyme mediated) and (Wax esters)
 or (Lignocellulose or (Plant biomass) OR
 (jojoba oil)) and (Jojoba or (Wax esters) or
 (Lignocellulose or (Plant biomass) OR (jojoba
 oil))) or hydrogenated wax esters and Lipase or
 transesterifi\$16 or (Jojoba or (Wax esters) or
 (Lignocellulose or (Plant biomass) OR (jojoba
 oil))) or hydrogenated wax esters and
 enzymatic or enzymic or (enzyme mediated)
 and (Wax esters) or (Lignocellulose or (Plant
 biomass) OR (jojoba oil)) and (Jojoba or (Wax
 esters) or (Lignocellulose or (Plant biomass) OR
 (jojoba oil))) or hydrogenated wax esters and
 Lipase or transesterifi\$16 and (Jojoba or (Wax
 esters) or (Lignocellulose or (Plant biomass) OR
 (jojoba oil))) or hydrogenated wax esters and
 Lipase or transesterifi\$16) or (Jojoba or (Wax
 esters) or (Lignocellulose or (Plant biomass) OR
 (jojoba oil))) or hydrogenated wax esters and
 enzymatic or enzymic or (enzyme mediated)
 and (Wax esters) or (Lignocellulose or (Plant
 biomass) OR (jojoba oil)) and (Jojoba or (Wax
 esters) or (Lignocellulose or (Plant biomass) OR
 (jojoba oil))) or hydrogenated wax esters and
 Lipase or transesterifi\$16 and (Jojoba or (Wax
 esters) or (Lignocellulose or (Plant biomass) OR
 (jojoba oil))) or hydrogenated wax esters) and
 (Wax esters) or (Lignocellulose or (Plant
 biomass) OR (jojoba oil)) and (product and

(Without and (methyl ester)) or (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) and (Jojoba)						
((hydrogenated wax esters or (((Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 or (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16) or (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters)) or (((Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 or (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax	USOC, EPAB, JPAB, DWPI, FPRS	6	ADJ	YES		03-20-2017

esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16) or (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (product and (Without and (methyl ester)) or (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and Jojoba) and (Lipase or transesterifi\$16)						
((hydrogenated wax esters or (((Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 or (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16) or (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax	USOC, EPAB, JPAB, DWPI, FPRS	6	ADJ	YES		03-20-2017

esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters)) or (((Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 or (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16) or (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and enzymatic or enzymic or (enzyme mediated) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16 and (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and (product and (Without and (methyl ester)) or (Jojoba or (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil))) or hydrogenated wax esters and Lipase or transesterifi\$16) and (Wax esters) or (Lignocellulose or (Plant biomass) OR (jojoba oil)) and Jojoba and Lipase or transesterifi\$16) and (enzymatic or enzymic or (enzyme mediated))						
(Transesterif\$10 same Lipase) same (Wax esters)	PGPB, USPT	9	ADJ	YES		10-19-2017
(oxidative stability Index) or ("OSI")	PGPB, USPT	73362	ADJ	YES		10-19-2017

enhanced same ((oxidative stability Index) or ("OSI"))	PGPB, USPT	1091	ADJ	YES		10-19-2017
(enhanced or higher) same ((oxidative stability Index) or ("OSI"))	PGPB, USPT	8811	ADJ	YES		10-19-2017
Transesterified product	PGPB, USPT	519	ADJ	YES		10-19-2017
(((oxidative stability Index) or ("OSI")) or ((enhanced or higher) same (oxidative stability Index) or ("OSI"))) or (enhanced same (oxidative stability Index) or ("OSI"))	PGPB, USPT	73362	ADJ	YES		10-19-2017
((((oxidative stability Index) or ("OSI")) or (enhanced or higher) same (oxidative stability Index) or ("OSI")) or enhanced same (oxidative stability Index) or ("OSI")) same (Transesterified product)	PGPB, USPT	2	ADJ	YES		10-19-2017
((((oxidative stability Index) or ("OSI")) or (enhanced or higher) same (oxidative stability Index) or ("OSI")) or enhanced same (oxidative stability Index) or ("OSI")) same Transesterified product) same ((Transesterified same Lipase) same (Wax esters))	PGPB, USPT	1	ADJ	YES		10-19-2017
Jojoba oil	PGPB, USPT	16054	ADJ	YES		10-19-2017
(Jojoba oil) same ((Transesterified same Lipase) same (Wax esters))	PGPB, USPT	2	ADJ	YES		10-19-2017
((Jojoba oil same (Transesterified same Lipase) same (Wax esters)) or (((oxidative stability Index) or ("OSI")) or (enhanced or higher) same (oxidative stability Index) or ("OSI")) or enhanced same (oxidative stability Index) or ("OSI")) same Transesterified product)) same (((oxidative stability Index) or ("OSI")) or (enhanced or higher) same (oxidative stability Index) or ("OSI")) or enhanced same (oxidative stability Index) or ("OSI"))	PGPB, USPT	2	ADJ	YES		10-19-2017
(soybean or (cotton seed) or canola or Linseed or Sunflower) same oil	PGPB, USPT	160741	ADJ	YES		10-19-2017
((soybean or (cotton seed) or canola or Linseed or Sunflower) same oil) same (((oxidative stability Index) or ("OSI")) or (enhanced or higher) same (oxidative stability Index) or ("OSI")) or enhanced same (oxidative stability	PGPB, USPT	207	ADJ	YES		10-19-2017

Index) or ("OSI"))						
((soybean or (cotton seed) or canola or Linseed or Sunflower) same oil same ((oxidative stability Index) or ("OSI") or (enhanced or higher) same (oxidative stability Index) or ("OSI")) or enhanced same (oxidative stability Index) or ("OSI")) same ((Transesterif\$10 same Lipase) same (Wax esters))	PGPB, USPT	0	ADJ	YES		10-19-2017
((Jojoba oil same (Transesterif\$10 same Lipase) same (Wax esters) or ((oxidative stability Index) or ("OSI") or (enhanced or higher) same (oxidative stability Index) or ("OSI")) or enhanced same (oxidative stability Index) or ("OSI") same Transesterified product) same ((oxidative stability Index) or ("OSI") or (enhanced or higher) same (oxidative stability Index) or ("OSI")) or enhanced same (oxidative stability Index) or ("OSI")) and ((C12P7/6436 C11C3/003 C11C3/10).CPC. and (435/134).CCLS. or (C12P7/64).IPCR.)	PGPB, USPT	2	ADJ	YES		10-19-2017
(Transesterif\$10 and Lipase) and (Wax esters)	PGPB, USPT	413	ADJ	YES		10-19-2017
((Transesterif\$10 and Lipase) and (Wax esters)) and ((Jojoba oil same (Transesterif\$10 same Lipase) same (Wax esters) or ((oxidative stability Index) or ("OSI") or (enhanced or higher) same (oxidative stability Index) or ("OSI")) or enhanced same (oxidative stability Index) or ("OSI") same Transesterified product) same ((oxidative stability Index) or ("OSI") or (enhanced or higher) same (oxidative stability Index) or ("OSI")) or enhanced same (oxidative stability Index) or ("OSI"))	PGPB, USPT	2	ADJ	YES		10-19-2017
(Transesterif\$10 and Lipase) and (Wax esters)	USOC, EPAB, JPAB, DWPI, FPRS	11	ADJ	YES		10-19-2017
(oxidative stability Index) or ("OSI")	USOC, EPAB, JPAB, DWPI, FPRS	44605	ADJ	YES		10-19-2017
(oxidative stability Index) or ("OSI") and (enhanced or increased or elevated)	USOC, EPAB,	7101	ADJ	YES		10-19-2017

	JPAB, DWPI, FPRS					
Transesterified product	USOC, EPAB, JPAB, DWPI, FPRS	255	ADJ	YES		10-19-2017
Jojoba oil	USOC, EPAB, JPAB, DWPI, FPRS	6031	ADJ	YES		10-19-2017
(soybean or (cotton seed) or canola or Linseed or Sunflower) and oil	USOC, EPAB, JPAB, DWPI, FPRS	131134	ADJ	YES		10-19-2017
(((oxidative stability Index) or ("OSI")) or (Transesterified product)) or ((oxidative stability Index) or ("OSI") and (enhanced or increased or elevated))	USOC, EPAB, JPAB, DWPI, FPRS	44856	ADJ	YES		10-19-2017
((Transesterified and Lipase) and (Wax esters)) and (Jojoba oil)	USOC, EPAB, JPAB, DWPI, FPRS	1	ADJ	YES		10-19-2017
((Transesterified and Lipase) and (Wax esters) and Jojoba oil) and (((oxidative stability Index) or ("OSI") or Transesterified product) or (oxidative stability Index) or ("OSI") and (enhanced or increased or elevated))	USOC, EPAB, JPAB, DWPI, FPRS	1	ADJ	YES		10-19-2017
((Transesterified and Lipase) and (Wax esters)) and ((soybean or (cotton seed) or canola or Linseed or Sunflower) and oil)	USOC, EPAB, JPAB, DWPI, FPRS	3	ADJ	YES		10-19-2017
((Transesterified and Lipase) and (Wax esters) and (soybean or (cotton seed) or canola or Linseed or Sunflower) and oil) and (((oxidative stability Index) or ("OSI") or Transesterified product) or (oxidative stability Index) or ("OSI") and (enhanced or increased or elevated))	USOC, EPAB, JPAB, DWPI, FPRS	0	ADJ	YES		10-19-2017

(Transesterified\$10 same Lipase) same (Wax esters)	PGPB, USPT	12	ADJ	YES		06-23-2018
(oxidative stability Index) or ("OSI")	PGPB, USPT	78083	ADJ	YES		06-23-2018
enhanced same ((oxidative stability Index) or ("OSI"))	PGPB, USPT	1152	ADJ	YES		06-23-2018
(enhanced or higher) same ((oxidative stability Index) or ("OSI"))	PGPB, USPT	9247	ADJ	YES		06-23-2018
Transesterified product	PGPB, USPT	572	ADJ	YES		06-23-2018
(((oxidative stability Index) or ("OSI")) or ((enhanced or higher) same (oxidative stability Index) or ("OSI"))) or (enhanced same (oxidative stability Index) or ("OSI"))	PGPB, USPT	78083	ADJ	YES		06-23-2018
((((oxidative stability Index) or ("OSI")) or (enhanced or higher) same (oxidative stability Index) or ("OSI")) or enhanced same (oxidative stability Index) or ("OSI")) same (Transesterified product)	PGPB, USPT	2	ADJ	YES		06-23-2018
((((oxidative stability Index) or ("OSI")) or (enhanced or higher) same (oxidative stability Index) or ("OSI")) or enhanced same (oxidative stability Index) or ("OSI")) same Transesterified product) same ((Transesterified\$10 same Lipase) same (Wax esters))	PGPB, USPT	1	ADJ	YES		06-23-2018
Jojoba oil	PGPB, USPT	16801	ADJ	YES		06-23-2018
(Jojoba oil) same ((Transesterified\$10 same Lipase) same (Wax esters))	PGPB, USPT	2	ADJ	YES		06-23-2018
((Jojoba oil same (Transesterified\$10 same Lipase) same (Wax esters)) or (((oxidative stability Index) or ("OSI")) or (enhanced or higher) same (oxidative stability Index) or ("OSI")) or enhanced same (oxidative stability Index) or ("OSI")) same Transesterified product)) same (((oxidative stability Index) or ("OSI")) or (enhanced or higher) same (oxidative stability Index) or ("OSI")) or enhanced same (oxidative stability Index) or ("OSI"))	PGPB, USPT	2	ADJ	YES		06-23-2018
(soybean or (cotton seed) or canola or Linseed or Sunflower) same oil	PGPB, USPT	168207	ADJ	YES		06-23-2018

((soybean or (cotton seed) or canola or Linseed or Sunflower) same oil) same (((oxidative stability Index) or ("OSI") or (enhanced or higher) same (oxidative stability Index) or ("OSI")) or enhanced same (oxidative stability Index) or ("OSI"))	PGPB, USPT	213	ADJ	YES		06-23-2018
((Jojoba oil same (Transesterif\$10 same Lipase) same (Wax esters) or ((oxidative stability Index) or ("OSI") or (enhanced or higher) same (oxidative stability Index) or ("OSI")) or enhanced same (oxidative stability Index) or ("OSI") same Transesterified product) same ((oxidative stability Index) or ("OSI") or (enhanced or higher) same (oxidative stability Index) or ("OSI")) or enhanced same (oxidative stability Index) or ("OSI")) and (((C12P7/6436) (C11C3/003) (C11C3/10)).CPC. and ((435/134)).CCLS. or ((C12P7/64)).IPCR.)	PGPB, USPT	2	ADJ	YES		06-23-2018
(Transesterif\$10 and Lipase) and (Wax esters)	PGPB, USPT	429	ADJ	YES		06-23-2018
((Transesterif\$10 and Lipase) and (Wax esters)) and ((Jojoba oil same (Transesterif\$10 same Lipase) same (Wax esters) or ((oxidative stability Index) or ("OSI") or (enhanced or higher) same (oxidative stability Index) or ("OSI")) or enhanced same (oxidative stability Index) or ("OSI") same Transesterified product) same ((oxidative stability Index) or ("OSI") or (enhanced or higher) same (oxidative stability Index) or ("OSI")) or enhanced same (oxidative stability Index) or ("OSI"))	PGPB, USPT	2	ADJ	YES		06-23-2018
(Transesterif\$10 and Lipase) and (Wax esters)	USOC, EPAB, JPAB, DWPI, FPRS	14	ADJ	YES		06-23-2018
(oxidative stability Index) or ("OSI")	USOC, EPAB, JPAB, DWPI, FPRS	45158	ADJ	YES		06-23-2018
(oxidative stability Index) or ("OSI") and (enhanced or increased or elevated)	USOC, EPAB, JPAB,	7116	ADJ	YES		06-23-2018

	DWPI, FPRS					
Transesterified product	USOC, EPAB, JPAB, DWPI, FPRS	263	ADJ	YES		06-23-2018
Jojoba oil	USOC, EPAB, JPAB, DWPI, FPRS	6738	ADJ	YES		06-23-2018
(soybean or (cotton seed) or canola or Linseed or Sunflower) and oil	USOC, EPAB, JPAB, DWPI, FPRS	141863	ADJ	YES		06-23-2018
(((oxidative stability Index) or ("OSI")) or (Transesterified product)) or ((oxidative stability Index) or ("OSI") and (enhanced or increased or elevated))	USOC, EPAB, JPAB, DWPI, FPRS	45416	ADJ	YES		06-23-2018
((Transesterified and Lipase) and (Wax esters)) and (Jojoba oil)	USOC, EPAB, JPAB, DWPI, FPRS	1	ADJ	YES		06-23-2018
((Transesterified and Lipase) and (Wax esters) and Jojoba oil) and (((oxidative stability Index) or ("OSI") or Transesterified product) or (oxidative stability Index) or ("OSI") and (enhanced or increased or elevated))	USOC, EPAB, JPAB, DWPI, FPRS	1	ADJ	YES		06-23-2018
((Transesterified and Lipase) and (Wax esters)) and ((soybean or (cotton seed) or canola or Linseed or Sunflower) and oil)	USOC, EPAB, JPAB, DWPI, FPRS	3	ADJ	YES		06-23-2018
addy-jeff\$.in.	PGPB, USPT	3	ADJ	YES		06-23-2018
brown-james-h\$.in.	PGPB, USPT	154	ADJ	YES		06-23-2018
International Flora Technologies, Ltd\$.as.	PGPB, USPT	35	ADJ	YES		06-23-2018

daly-clay\$.in.	PGPB, USPT	1	ADJ	YES		06-23-2018
brown-james-h\$.in.	PGPB, USPT	154	ADJ	YES		06-23-2018
International Flora Technologies, Ltd\$.as.	PGPB, USPT	35	ADJ	YES		06-23-2018
((International Flora Technologies, Ltd\$.as.) or (daly-clay\$.in.)) or (addy-jeff\$.in.) or (brown-james-h\$.in.))	PGPB, USPT	170	ADJ	YES		06-23-2018
((International Flora Technologies, Ltd\$.as. or daly-clay\$.in.) or (addy-jeff\$.in. or brown-james-h\$.in.)) and ((Transesterif\$10 and Lipase) and (Wax esters) and (Jojoba oil same (Transesterif\$10 same Lipase) same (Wax esters) or ((oxidative stability Index) or ("OSI") or (enhanced or higher) same (oxidative stability Index) or ("OSI")) or enhanced same (oxidative stability Index) or ("OSI") same Transesterified product) same ((oxidative stability Index) or ("OSI") or (enhanced or higher) same (oxidative stability Index) or ("OSI")) or enhanced same (oxidative stability Index) or ("OSI"))	PGPB, USPT	2	ADJ	YES		06-23-2018
((International Flora Technologies, Ltd\$.as. or daly-clay\$.in.) or (addy-jeff\$.in. or brown-james-h\$.in.) and (Transesterif\$10 and Lipase) and (Wax esters) and (Jojoba oil same (Transesterif\$10 same Lipase) same (Wax esters) or ((oxidative stability Index) or ("OSI") or (enhanced or higher) same (oxidative stability Index) or ("OSI")) or enhanced same (oxidative stability Index) or ("OSI") same Transesterified product) same ((oxidative stability Index) or ("OSI") or (enhanced or higher) same (oxidative stability Index) or ("OSI")) or enhanced same (oxidative stability Index) or ("OSI")) and ((C12P7/6436 C11C3/003 C11C3/10).CPC. and (435/134).CCLS. or (C12P7/64).IPCR.)	PGPB, USPT	2	ADJ	YES		06-23-2018



Aluyor African JOURNAL OF Biotechnology 2008 Page 4836



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The use of antioxidants in vegetable oils A reviewwww.academicjournals.org/journal/AJB/article-abstract/48527948788

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Dec 29, 2008 - Emmanuel O. Aluyor* and Mudiakenghene Ori-Jesu. Department ... 4836-4842,

December 2008, <https://doi.org/10.5897/AJB08.083>. Accepted: ...

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African Journal of Biotechnology - 2008 archive - Academic Journalswww.academicjournals.org/journal/AJB/archive/2008**African Journal of Biotechnology**, Abbreviation: Afr. J. Biotechnol. Language: English; ISSN:

1684-5315; DOI: 10.5897/AJB; Start Year: ... AJB 2008 ARCHIVE ...

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COD removal from industrial wastewater using activated carbon ...www.academicjournals.org/journal/AJB/article-abstract/21E03FD7851

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Emmanuel O. Aluyor and Olatokun A. M. Badmus. Department of Chemical ... Accepted: 14 August

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Page 1 ... ing a stable radical (Kilazuna et al. 2004; Aluyor and Ori-Jesu, 2008). Bio-chemically ...

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Proceedings ... [10]: Emmanuel O. Aluyor et al, "The Use of Antioxidants in Vegetable Oils-A

Review", **African Journal of Biotechnology**, Vol. 7 (25), ISSN 1684-5315, pp 4836-4842, 29

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International Journal of Nutrition and Food Engineering, Vol:6, No:9, 2012, 722 ... Page 2 ... [4]

Emmanuel O. Aluyor, M.O.-J., The use of antioxidants in vegetable oils. – A review. **African Journal****of Biotechnology**, 2008, 7(25): p. 4836- 4842.**PDF Effects of Antioxidants on the Oxidative Stability of Vegetable Oil at ...**www.ijastnet.com/journals/Vol_3_No_5_May_2013/12.pdf

by OT Azeez - 2013 - Cited by 13 - Related articles

Aluyor E. O., & Ori-Jesu M. (2008). The use of antioxidants in vegetable oils – A review. **African****Journal of Biotechnology**, 7 (25), 4836-4842. Amaral, J. S., Casal ...**Effect of Addition of Tertiary-Butyl Hydroquinone into Palm Oil to ...**www.tandfonline.com/doi/full/10.1080/10402004.2015.1118584?scroll=top...true

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BIB DATA SHEET

CONFIRMATION NO. 2053

SERIAL NUMBER 14/578,075	FILING or 371(c) DATE 12/19/2014 RULE	CLASS 435	GROUP ART UNIT 1657	ATTORNEY DOCKET NO. FloraTech002	
APPLICANTS International Flora Technologies, Ltd., Chandler, AZ; INVENTORS Jeff Addy, Chandler, AZ; Clay Daly, Chandler, AZ; James H. Brown, Chandler, AZ; ** CONTINUING DATA ***** ** FOREIGN APPLICATIONS ***** ** IF REQUIRED, FOREIGN FILING LICENSE GRANTED *** SMALL ENTITY ** 01/08/2015					
Foreign Priority claimed ☐ Yes ☒ No 35 USC 119(a-d) conditions met ☐ Yes ☐ No Verified and /KAILASH C SRIVASTAVA/ Acknowledged Examiner's Signature	☐ Met after Allowance Initials	STATE OR COUNTRY AZ	SHEETS DRAWINGS 4	TOTAL CLAIMS 20	INDEPENDENT CLAIMS 3
ADDRESS IPTechLaw 8350 E Raintree Dr., Ste 245 Scottsdale, AZ 85260 UNITED STATES					
TITLE Processes and Systems for Catalytic Manufacture of Wax Ester Derivatives					
FILING FEE RECEIVED 800	FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:		☐ All Fees ☐ 1.16 Fees (Filing) ☐ 1.17 Fees (Processing Ext. of time) ☐ 1.18 Fees (Issue) ☐ Other _____ ☐ Credit		

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)

Application Number	14578075
Filing Date	2014-12-19
First Named Inventor	Jeff Addy
Art Unit	1657
Examiner Name	SRIVASTAVA, KAILASH C
Attorney Docket Number	FLORATECH002

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/KAILASH C SRIVASTAVA/

07/31/2018

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**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	14578075
Filing Date	2014-12-19
First Named Inventor	Jeff Addy
Art Unit	1657
Examiner Name	SRIVASTAVA, KAILASH C
Attorney Docket Number	FLORATECH002

1	JACKSON, Michal A., Isolation of Long-chain Aliphatic Alcohols From Beeswax Using Lipase-catalyzed Methanolysis in Supercritical Carbon Dioxide, Journal of Supercritical Fluids, Vol. 37, 2006, pages 173-177.
2	LEI, Qiong, et al., Functional Monoesters of Jojoba Oil can be Produced by Enzymatic Interesterification: Reaction Analysis and Structural Characterization, European Journal of Lipid Science and Technology, Vol. 117, December 22, 2014, pages 630-636.
3	Extended European Search Report, European Patent Application No. 15871261.2, June 8, 2018, 9 pages.

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EXAMINER SIGNATURE

Examiner Signature	/KAILASH C SRIVASTAVA/	Date Considered	07/31/2018
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*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.

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**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	14578075
Filing Date	2014-12-19
First Named Inventor	Jeff Addy
Art Unit	1657
Examiner Name	SRIVASTAVA, KAILASH C
Attorney Docket Number	FLORATECH002

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	/Adam Stephenson/	Date (YYYY-MM-DD)	2018-07-05
Name/Print	Adam R. Stephenson	Registration Number	58349

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 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)).
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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 14/578,075	Filing Date 12/19/2014	☐ To be Mailed
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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), (l), 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 \$40 =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 = *		x \$210 =	
☐ 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)	RATE (\$)	ADDITIONAL FEE (\$)
AMENDMENT	12/06/2018		CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	
	Total (37 CFR 1.16(i))	* 7	Minus	** 20	= 0	x \$50 = 0
	Independent (37 CFR 1.16(h))	* 1	Minus	*** 3	= 0	x \$230 = 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			CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	
	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.						

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FLORATECH002

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

DECLARATION

Applicant: Jeff Addy

Docket No: FLORATECH002

Examiner: SRIVASTAVA, KAILASH C

Ser. No: 14578075

Filed: December 19, 2014

Group Art Unit: 1657

Conf. No.: 2053

Title: Processes and Systems for Catalytic Manufacture of Wax Ester Derivatives

DECLARATION UNDER 37 C.F.R. 1.132

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir/Madam:

I, Jeff Addy, declare as follows:

1. I am a named inventor on this patent application. I have read and am familiar with the contents of this application. In addition, I have read the Non-final Office Action mailed August 6, 2018, for the present application. It is my understanding the pending claim has been rejected because the Examiner believes the claims 1-2 and 4 are anticipated by the paper by Steinke et al., "Lipase-Catalyzed Alcoholysis of Crambe Oil and Camelina Oil for the Preparation of Long-Chain Esters," *J. Acad. Org. Chem. Soc.*, V. 77, No. 4 p. 361-366 (2000), hereinafter "Steinke."

2. As Steinke provides no information regarding the oxidative stability index (OSI) values for any of the products made using the processes disclosed in the reference, I undertook to duplicate the process described in Steinke for the crambe oil to create a transesterified mixture and perform an OSI test on the original crambe esters and the product. The Examiner is taking the position that because the process described in Steinke is allegedly the same as that described in claim 1, then any wax ester material processed using a process like that in claim 1 would inherently produce a product that has a higher OSI value than an OSI of the feedstock materials. I note that the Examiner has referred to no evidence in Steinke or other experimental evidence from any other sources to support this conclusion or predict this outcome, but has just cited a court case.

Experimental Procedure:

3. **Crambe Esters: Fatty Acid Methyl Ester Derivatization:** Crambe oil (USDA Agricultural Research Service, Peoria, Illinois) was converted to fatty acid methyl esters using a 2:1 molar equivalent of methanol and crambe oil triglyceride using 0.1% w/w anhydrous sodium methoxide as a catalyst. The reaction proceeded under an inert nitrogen sparge at 70 C until converted. A condenser was utilized to recapture methanol back into the reaction. After the crambe oil was converted to fatty acid methyl esters, the catalyst was deactivated with an appropriate molar amount of citric acid and the generated glycerol was allowed to decant and subsequently removed. The product was further processed to remove excess methanol and color bodies formed during the esterification process.
4. **Hydrogenolysis:** A portion of fatty acid methyl esters were reduced into fatty alcohols batch-wise using a 1 L high pressure/high temperature reactor and a heterogeneous copper-based catalyst. The reaction proceeded at 1500 psi H₂ at 250 C under high agitation. The mixture was then cooled to 70 C and generated methanol was removed by vacuum distillation. The catalyst was removed by filtration.

5. **Hydrogenation/Transesterification:** The crambe fatty alcohols were combined in a 1.1:1 molar equivalent of crambe fatty acid methyl esters and a portion was hydrogenated in a high temperature/pressure vessel at 140 C and 40 psi H₂ using a nickel based catalyst. Once the iodine value had reached zero, the hydrogenate was cooled and filtered to remove catalyst. The hydrogenate was combined with the unsaturated fatty alcohol/methyl ester in a 1:4 ratio and tested for oxidative stability using peroxide value (PV), anisidine value (AnV), and OSI.
6. The mixture then underwent a batch-wise transesterification using Lipozyme TL IM (Novozyme) at a 2% w/w ratio of the input. The reaction proceeded under vacuum at 70 C until the fatty acid methyl esters were consumed. The catalyst was removed via filtration and resulting product tested again for PV, AnV, and OSI.
7. **Jojoba Esters:** Jojoba esters were produced by hydrogenating and subsequently transesterifying jojoba oil/hydrogenated jojoba oil in a 4:1 ratio using the same process conditions detailed above for the crambe esters. An additional 1.6% w/w input of oleyl alcohol was incorporated into the reaction. PV, AnV, and OSI were tested on both pre/post reaction materials.

Experimental Results:

8. The tables below details the results for OSI, Peroxide Value, and Anisidine Value for the jojoba esters and for the crambe esters produced using the method in Steinke:

OSI (hours)	1	2	3	Avg.	+/-
Jojoba Pre-Reaction	15.825	18.176	18.484	17.495	1.455
Jojoba Post Reaction	65.075	68.875	67.775	67.242	1.955
% Change	411%	379%	367%	384%	23%

Crambe Pre-Reaction	1.191	1.134	1.765	1.363	0.349
Crambe Post Reaction	2.537	1.990	2.635	2.388	0.348
% Change	213%	176%	149%	175%	32%

Peroxide Value (mEq/Kg)	1	2	3
Jojoba Pre-Reaction	0.3	0.3	0.3
Jojoba Post Reaction	ND	ND	ND
Crambe Pre-Reaction	0.1	0.2	0.2
Crambe Post Reaction	ND	ND	ND

Anisidine Value (AnV Unit)	1	2	3
Jojoba Pre-Reaction	0.253	0.201	0.216
Jojoba Post Reaction	ND	ND	ND
Crambe Pre-Reaction	0.100	0.200	0.200
Crambe Post Reaction	ND	ND	ND

9. Peroxide Value (American Oil Chemists Society [AOCS] Cd 8b-90) and Anisidine Value (AOCS Cd 18-90) are recognized methods to determine the oxidative state of an oil with OSI (AOCS Cd 12b-92) being a real-world estimation of shelf life. Iodine value (AOCS Cd 1-92) influences the oxidative stability as saturated compounds have fewer functional groups that are starting points of oxidation. Testing of peroxide value, anisidine value, and OSI, along with iodine value were carried out using the above standards for the crambe and jojoba feedstocks and products.

Analysis/Observations:

10. While both the jojoba and crambe derived ester products saw an increase in oxidative stability over the OSI of the original feedstock, the jojoba derived esters increased by an average of 384% compared to 175% for the crambe derivative. This is surprising because both materials have iodine values between 65-67 and showed similar oxidative parameters in PV and AnV prior to the reaction. It is also important to note that while the OSI of the crambe ester products increased an average of 175%, this increase was merely 1 hour. An increase of 1 hour under the OSI evaluation is not actually significant. The OSI evaluation for the jojoba derivative had a +/- of 1.455 to 1.955 hours on its own, which is of the same order

of magnitude as the observed increase in OSI of the crambe products themselves. Because of this, it is difficult to conclusively argue that the OSI of the crambe products is really higher than the OSI of the original feedstock materials to the transesterification reaction.

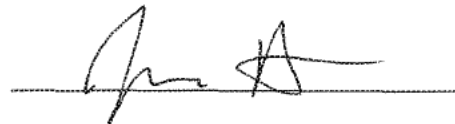
11. Given the similarities in iodine value, peroxide value, and anisidine values between the crambe oil esters and the jojoba esters prepared using the method of Steinke, one would expect the OSI of the crambe and jojoba derivatives be close if not identical. The substantial increase in post reaction OSI for the jojoba ester product versus the observed quantitatively minimal increase in post reaction OSI for the crambe ester product is accordingly a very unexpected result.
12. The experimental results demonstrate that using the method of Steinke does not result in products that show a quantitatively significant increase in OSI over the OSI of the feedstock. The marked quantitative and percentage increase for jojoba ester products (over 3.5 times higher OSI) indicates that the unexpectedly good result for OSI depends on characteristics of the feedstock material different from just peroxide value, iodide value, or anisidine value which are commonly used for comparison. Because of this, whether any particular wax ester feedstock material will demonstrate the OSI increase following an enzymatic transesterification reaction is not predictable using these common parameters.
13. In view of the unpredictability of the results despite the similarities between crambe oil and jojoba oil, in my opinion, it would be impossible for a person of ordinary skill reading Steinke to have had any ability to predict that the OSI of Steinke's products would be higher than the OSI of its feedstock materials simply using the disclosure of Steinke. These unexpected results could only be determined and observed by actually carrying out the extensive and time-consuming experimentation I have detailed in this affidavit.

14. 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.

FURTHER AFFIANT SAYETH NOT.

06DEC18

Date

A handwritten signature in black ink, appearing to read 'Jeff Addy', is written over a horizontal line.

Jeff Addy

Electronic Patent Application Fee Transmittal

Application Number:	14578075			
Filing Date:	19-Dec-2014			
Title of Invention:	Processes and Systems for Catalytic Manufacture of Wax Ester Derivatives			
First Named Inventor/Applicant Name:	Jeff Addy			
Filer:	Adam Reid Stephenson/Dee Wilson			
Attorney Docket Number:	FloraTech002			
Filed as Small Entity				
Filing Fees for Utility under 35 USC 111(a)				
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 - 1 month with \$0 paid	2251	1	100	100
Miscellaneous:				
Total in USD (\$)				100

Electronic Acknowledgement Receipt

EFS ID:	34511831
Application Number:	14578075
International Application Number:	
Confirmation Number:	2053
Title of Invention:	Processes and Systems for Catalytic Manufacture of Wax Ester Derivatives
First Named Inventor/Applicant Name:	Jeff Addy
Customer Number:	93756
Filer:	Adam Reid Stephenson/Dee Wilson
Filer Authorized By:	Adam Reid Stephenson
Attorney Docket Number:	FloraTech002
Receipt Date:	06-DEC-2018
Filing Date:	19-DEC-2014
Time Stamp:	18:07:20
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	\$ 100
RAM confirmation Number	120718INTEFSW18075100
Deposit Account	
Authorized User	

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

Vantage Exhibit 1002

Page 474 of 1215
CARGILL 00000499

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	OAR4.pdf	157526	no	12
			ddcff4cb7a52fe8e94270fbfc3acd38417ce00a6		
Warnings:					
Information:					
2	Affidavit-traversing rejectns or objectns rule 132	132AffidavitSigned.pdf	718535	no	6
			5458d6cf84370522d0e62680f7a534298144b4be		
Warnings:					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	30192	no	2
			19c94e6f5b3551d1407c8c96f702af6df6fc40a6		
Warnings:					
Information:					
Total Files Size (in bytes):			906253		
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. <u>New Applications Under 35 U.S.C. 111</u> 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. <u>National Stage of an International Application under 35 U.S.C. 371</u> 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. <u>New International Application Filed with the USPTO as a Receiving Office</u> 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.					

FLORATECH002

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

AMENDMENT/REPLY

Applicant: Jeff Addy

Docket No: FLORATECH002

Examiner: SRIVASTAVA, KAILASH C

Ser. No: 14578075

Filed: December 19, 2014

Group Art Unit: 1657

Conf. No.: 2053

Title: Processes and Systems for Catalytic Manufacture of Wax Ester Derivatives

**RESPONSE TO OFFICE ACTION
DATED AUGUST 6, 2018**

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir/Madam:

The following is responsive to the Office Action mailed August 6, 2018. Applicant respectfully requests a one (1) month extension, the fee for which is included herewith, and reconsideration of the application in view of the following:

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks/Arguments begin on page 4 of this paper.

AMENDMENTS TO THE CLAIMS

Please amend claim 1 as indicated among the following complete set of pending claims:

1. (Currently Amended) A process for transesterifying wax esters, the process comprising:
 - providing a feedstock comprising wax esters;
 - contacting the feedstock with a lipase;
 - catalytically transesterifying the wax esters in the feedstock with the lipase to form a transesterified product;
 - wherein an oxidative stability index (OSI) of the transesterified product is at least 2.5 times greater than an OSI of the feedstock.
2. (Original) The process of claim 1, wherein the transesterified product comprises no methyl esters.
3. (Original) The process of claim 1, wherein the feedstock further comprises an antioxidant and catalytically transesterifying the wax esters in the feedstock with the lipase further comprises catalytically transesterifying without one of removing and degrading the antioxidant in the feedstock.
4. (Original) The process of claim 3, wherein the feedstock further comprises a skin conditioning agent and a volatile compound and catalytically transesterifying the wax esters in the feedstock with the lipase further comprises catalytically transesterifying without one of

removing and degrading the skin conditioning agent and the volatile compound in the feedstock.

5. (Original) The process of claim 1, wherein the wax esters of the feedstock are jojoba wax esters.

6. (Original) The process of claim 5, wherein the jojoba wax esters further comprise hydrogenated jojoba wax esters.

7. (Original) The process of claim 6, wherein a dropping point of the transesterified product is greater than a dropping point of the feedstock and the dropping point of the transesterified product increases as a percentage of hydrogenated jojoba wax esters in the feedstock increases.

8-20. (Canceled).

REMARKS

Claims 1 – 7 are currently pending in the application. Applicant has amended claim 1. Applicant requests reconsideration of the application in light of the following remarks.

Rejections under 35 U.S.C. 102

“To anticipate a claim, a single prior art reference must expressly or inherently disclose each claim limitation. *Celeritas Techs v. Rockwell Int’l Corp.*, 150 F.3d 1354, 1361 (Fed. Cir. 1998). But disclosure of each element is not quite enough—this court has long held that ‘[a]nticipation requires the presence in a single prior art disclosure of all elements of a claimed invention *arranged as in the claim.*’ *Connell v. Sears, Roebuck & Co.*, 722 F.2d 1542, 1548 (Fed. Cir. 1983) (citing *Soundsciber Corp. v United States*, 360 F.2d 954, 960, 175 Ct. Cl. 644 (Ct. Cl. 1966) (emphasis added).” *Finisar Corp. v. DirecTV Group, Inc.*, 523 F.3d 1323 (Fed. Cir. 2008).

Claims 1-2, and 4 were rejected under 35 U.S.C. 102(a)(1) as being anticipated by Steinke et al. (Steinke et al., Lipase-Catayzed Alcoholysis of Crambe Oil and Camelina Oil for the Preparation of Long-Chain Esters, JAOCS, 25000, Volume 77, Number 4, pages 361-366 hereinafter “Steinke”). Applicant respectfully traverses this rejection and requests reconsideration of the claims.

Claims 1-2, and 4 were also rejected under 35 U.S.C. 102(a)(1) as being anticipated by Gunawan et al. (Gunawan et al., Lipase-Catayzed Synthesis of Palm-based Wax Esters, Journal of Oleo Science 2004, Volume 53, Number 10, pages 471-477 hereinafter “Gunawan”). Applicant respectfully traverses this rejection and requests reconsideration of the claims.

Inherency over Steinke and Gunawan

The Examiner specifically rejects claims 1-2 and 4 stating that “an OSI of the feedstock is a property that would necessarily be presented in the process as taught by Steinke because the prior art method steps are the same as recited in the instant claims.” 8/6/2018 Non-final

Action, p. 5. The Examiner's argument then, is that the OSI effect recited in claim 1 is inherently disclosed by the disclosure of the methods of Steinke and Gunawan.

As the Office well knows, M.P.E.P. § 2112, under the heading "Examiner Must Provide Rationale or Evidence Tending to Show Inherency", states that "[t]he fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic. *In re Rijckaert*, 9 F.3d 1531, 1534, 28 USPQ2d 1955, 1957 (Fed. Cir. 1993)." M.P.E.P. § 2112 further states that "[i]n relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art.' *Ex parte Levy*, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990) (emphasis in original).

The Examiner's rejection of claims 1-2 and 4 over both Steinke and Gunawan both hang entirely on their alleged disclosure of the same method steps as those claimed in independent claim 1. This is because neither Steinke nor Gunawan actually include any OSI data of either the feedstock materials or the reaction products—there is no data in either reference to support the Examiner's assertion. The Applicant disagrees entirely that Steinke and Gunawan actually disclose the claimed method steps. However, for the sake of argument, the Applicant performed an experiment to assess whether carrying out the method of Steinke with crambe oil and jojoba oil would create a product that demonstrated the effect on OSI claimed in independent claim 1, as amended.

Referring to the Declaration of Jeff Addy ("Addy Declaration"), one of the named inventors of this application, the Addy declaration details how the method of Steinke for creating esters from crambe oil was used to make esters for subsequent transesterification using the process outlined in Steinke. Crambe oil was selected as the comparison component because it is very similar to jojoba oil in a number of important parameters outlined in the Addy Declaration. If the method of Steinke could create products with claimed effect for both

crambe oil and jojoba oil feedstocks, then the Examiner's argument that the method of Steinke inherently produces products with the claimed improvement in OSI would be valid. However, if the method of Steinke failed to produce the claimed effect for both crambe oil and jojoba oil, then it is clear that the mere use of the method of Steinke fails entirely to **necessarily** create a product with the claimed improvement in OSI. The Examiner has argued that the process of Gunawan likewise anticipates the claimed method of claim 1. The Examiner has provided no data to suggest the process of Gunawan would perform any differently from the process of Steinke (or that the process of Gunawan differs in ways that would affect its ability to anticipate the claimed method). Accordingly, an experiment using just the method of Steinke is sufficient to show whether both Steinke or Gunawan have the ability to necessarily create a product with the claimed OSI improvement and thus inherently anticipate claim 1.

Paragraph 8 of the Addy Declaration summarizes the experimental results. With respect to OSI, it is clear that jojoba-based feedstock had an average OSI of 17.495 hours and a product OSI of 67.242 hours, for a total increase of 3.84 times. In contrast, the crambe-based feedstock had an average of OSI of 1.363 hours and product OSI of 2.388 hours for a total increase of 2.38 times. It is quite clear by inspection that the process of Steinke produces non-uniform OSI results that differ strongly on the feedstock material—this even when jojoba oil and crambe oil are similar in important characteristics that otherwise would lead one of ordinary skill to expect the OSI increases would be the same. Also, it is important to note that the observed OSI increase for crambe oil is within the level of measurement noise for OSI—an increase of a single hour is very little actual increase and not one that would be commercially significant or observable as a practical matter.

The experimental results in the Addy Declaration demonstrate one again what has often been observed by the courts—that the chemical arts are unpredictable in nature. Because of this, and as demonstrated by the data and the conclusions in para. 11-13 of the Addy Declaration it clear that there is no way either the Steinke or Gunawan methods **necessarily** will create any transesterified product which "...is at least 2.5 times greater than an OSI of the

feedstock.” Claim 1, as amended. There is simply no way one of ordinary skill would have, in view of the disclosures of Steinke and Gunawan alone, have been able to predict this result. Because of this, neither Steinke or Gunawan disclose, expressly or inherently, the subject matter of claim 1.

The Examiner’s mere citation of case law fails entirely in view of the data in the Addy Declaration to establish any basis in fact or technical reasoning to support the determination that Steinke or Gunaway expressly or inherently disclose each and every element of claim 1.

Furthermore, dependent claims 2 and 4 are allowable, among other reasons, for depending from otherwise allowable independent claim 1.

Applicant respectfully requests that the anticipation rejections of claims 1-2 and 4 be withdrawn.

Rejections under 35 U.S.C. 103

Claims 3 and 5-7 were rejected under 35 U.S.C. 103(a) as being unpatentable over Steinke et al. (Steinke et al., Lipase-Catayzed Alcoholysis of Crambe Oil and Camelina Oil for the Preparation of Long-Chain Esters, JAOCS, 25000, Volume 77, Number 4, pages 361-366 hereinafter “Steinke”), and Gunawan et al. (Gunawan et al., Lipase-Catayzed Synthesis of Palm-based Wax Esters, Journal of Oleo Science 2004, Volume 53, Number 10, pages 471-477 hereinafter “Gunawan”), in light of Aluyor et al., (Aluyor et al., The Use of Antioxidants in Vegetable Oils – A Review, African Journal of Biotechnology, 2008, Volume 7, pages 4836-4842 hereinafter “Aluyor”). Applicant respectfully traverses this rejection and requests reconsideration of the claims.

Referring to the legal standards set forth in Appendix A, Applicant observes that the Examiner has not explicitly stated which of the obviousness rationales endorsed in *KSR International Co. v. Teleflex Inc.* 550 U.S. 398, 127 S.Ct. 1727, 167 L.Ed.2d 705 (2007) are being used. The Applicant believes the rationale being used is A/E:

“(A) Combining prior art elements according to known methods to yield predictable results;

(B) Simple substitution of one known element for another to obtain predictable results;

(C) Use of known technique to improve similar devices (methods, or products) in the same way;

(D) Applying a known technique to a known device (method, or product) ready for improvement to yield predictable results;

(E) “Obvious to try”—choosing from a finite number of identified, predictable solutions, with a reasonable expectation of success;

(F) Known work in one field of endeavor may prompt variations of it for use in either the same field or a different one based on design incentives or other market forces if the variations are predictable to one of ordinary skill in the art;

(G) Some teaching, suggestion, or motivation in the prior art that would have led one of ordinary skill to modify the prior art reference or to combine prior art reference teachings to arrive at the claimed invention.” MPEP § 2141(II), (III) and 72 Federal Register 57527 (October 10, 2007).]

Claims 3 and 5-7 are allowable, among other reasons, for depending from otherwise allowable independent claim 1. Furthermore, with respect to at least claim 7, the mere existence of jojoba wax esters or hydrogenated jojoba wax esters does not mean that such esters employed in a transesterification reaction like that in Steinke or Gunawan would necessarily produce a product where “a dropping point of the transesterified product is greater than a dropping point of the feedstock...” Claim 7. Given the results of the experimentation using the process of Steinke detailed in the Addy Declaration filed herewith, that such results would be obtained with jojoba esters would be entirely unpredictable in view of neither Steinke nor Gunawan showing any experimental results that show a dropping point including a jojoba ester feedstock. Given the demonstrated unpredictability in the results based on what feedstock is used in the Steinke process, the Examiner’s entire reliance on inherency to support the obviousness rejection of claim 7 is error—the subject matter of claim 7 simply cannot be rationally said to *necessarily* follow simply because jojoba esters exist. One of ordinary skill

would not be led to make the combination with Aluyor because such a person would not have predicted using crude jojoba oil as a feedstock could have produce the results claimed in claim 7.

Applicant respectfully requests that the obviousness rejections of claims 3 and 5-7 be withdrawn.

Regarding Doctrine of Equivalents

Applicant hereby declares that any amendments herein that are not specifically made for the purpose of patentability are made for other purposes, such as clarification, and that no such changes shall be construed as limiting the scope of the claims or the application of the Doctrine of Equivalents.

CONCLUSION

Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

If any fees, including extension of time fees or additional claims fees, are due as a result of this response, please charge Deposit Account No. 60-1853. This authorization is intended to act as a constructive petition for an extension of time, should an extension of time be needed as a result of this response. The examiner is invited to telephone the undersigned if this would in any way advance the prosecution of this case.

Respectfully submitted,

Date: 12/6/2018

By: /Adam Stephenson/
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Appendix A:

Legal Standard for Finding Obviousness under 35 U.S.C. 103

The most recent guidelines published by the USPTO regarding the implementation of the Supreme Court's decision in *KSR International Co. v. Teleflex Inc.* 550 U.S. 398, 127 S.Ct. 1727, 167 L.Ed.2d 705 (2007) state that:

An invention that would have been obvious to a person of ordinary skill at the time of the invention is not patentable. See 35 U.S.C. 103(a). As reiterated by the Supreme Court in *KSR*, the framework for the objective analysis for determining obviousness under 35 U.S.C. 103 is stated in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966). Obviousness is a question of law based on underlying factual inquiries. The factual inquiries enunciated by the Court are as follows:

- (A) Determining the scope and content of the prior art;
- (B) Ascertaining the differences between the claimed invention and the prior art; and
- (C) Resolving the level of ordinary skill in the pertinent art...

Office personnel fulfill the critical role of fact-finder when resolving the *Graham* inquiries... When making an obviousness rejection, Office personnel must therefore ensure that the written record includes findings of fact concerning the state of the art and the teachings of the references applied. In certain circumstances, it may also be important to include explicit findings as to how a person of ordinary skill would have understood prior art teachings, or what a person of ordinary skill would have known or could have done. Factual findings made by Office personnel are the necessary underpinnings to establish obviousness...

In short, the focus when making a determination of obviousness should be on what a person of ordinary skill in the pertinent art would have known at the time of the invention, and on what such a person should reasonably have been able to do in view of that knowledge. This is so regardless of whether the source of that knowledge and ability was documentary prior art, general knowledge in the art, or common sense...

The key to supporting any rejection under 35 U.S.C. 103 is the clear articulation of the reason(s) why the claimed invention would have been obvious. The Supreme Court in *KSR* noted that the analysis supporting a rejection under 35 U.S.C. 103 should be made explicit. The Court quoting *In re Kahn*, 441 F.3d 977, 988, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006) stated