Paper No. 12

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

MOTIF FOODWORKS, INC.,

Petitioner,

v.

IMPOSSIBLE FOODS INC.,
Patent Owner.

U.S. Patent No. 10,039,306

"METHODS AND COMPOSITIONS FOR CONSUMABLES"

Inter Partes Review No. 2023-00209

PETITIONER'S UPDATED EXHIBIT LIST

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EX1015	U.S. Patent No. 3,519,437 to Giacino, issued July 7, 1970
EX1016	Boye et al., *Pulse Proteins: Processing, Characterization, Functional Properties and Applications in Food and Feed*, 43 FOOD RESEARCH INT'L 414-31 (2010)
EX1017	Mottram, *Flavour Formation in Meat and Meat Products: A Review*, 62 FOOD CHEM. 415-24 (1998)

EX1019	Proulx & Reddy, *Iron Bioavailability of Hemoglobin from Soy Root Nodules Using a Caco-2 Cell Culture Model*, 54 J. AGRIC. & FOOD CHEM. 1518-22 (2006)
EX1021	U.S. Patent Publication No. 2008/0268112 A1 to Rolan et al., published October 30, 2008
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EX1024	MacLeod et al., *Natural and Simulated Meat Flavors (with Particular Reference to Beef)*, 14 CRITICAL REVIEWS IN FOOD SCI. & NUTRITION 309-437 (1981)
EX1025	U.S. Provisional No. 61/751,816, filed January 11, 2013
EX1026	Dwivedi & Brockman, *Meat Flavor*, 5 CRITICAL REVIEWS IN FOOD SCI. & NUTRITION 487-535 (1981)
EX1027	Pearson & Gillett, PROCESSED MEATS Ch. 3 (3d ed. 1996)
EX1028	Calkins & Hodgen, *A Fresh Look at Meat Flavor*, 77 MEAT SCI. 63-80 (2007)
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EX1032	Cerny & Davidek, *Formation of Aroma Compounds from Ribose and Cysteine during the Maillard Reaction*, 51 J. ARGRIC. FOOD CHEM. 2714-21 (2003)

EX1033	Reineccius, FLAVOR CHEMISTRY AND TECHNOLOGY CH. 5 (2d ed. 2006)
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EX1035	Verbeke & Viaene, *Ethical Challenges for Livestock Production: Meeting Consumer Concerns about Meat Safety and Animal Welfare*, 12 J. OF AGRIC. & ENV'T ETHICS 141-51 (2000)
EX1036	Pimentel & Pimentel, *Sustainability of Meat-Based and Plant-Based Diets and the Environment*, 78 AM. J. CLINICAL NUTRITION 660S-63S (2003)
EX1038	Manley, *Process Flavors*, *in* SOURCE BOOK OF FLAVORS 139-54 (G. Reineccius ed., 2d ed. 1999)
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EX1045	Hofmann & Schieberle, *Evaluation of the Key Odorants in a Thermally Treated Solution of Ribose and Cysteine by Aroma Extract Dilution Techniques*, 43 J. AGRIC. FOOD CHEM. 2187-2194 (1995)
EX1046	Goto et al., *Iron Fortification of Rice Seed by the Soybean Ferritin Gene*, 17 NATURE BIOTECH. 282-86 (1999)

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EX1056	Klesk & Qian, *Aroma Extract Dilution Analysis of Cv. Marion (*Rubus spp. hyb*) and Cv. Evergreen (*R. laciniatus L.*) Blackberries*, 51 J. AGRIC. FOOD CHEM. 3436-41 (2003)
EX1060	Marchand et al., *Possible Mechanism for Involvement of Cysteine in Aroma Production in Wine*, 50 J. AGRIC. & FOOD CHEM. 6160-64 (2002)
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EX1084	Fellows, FOOD PROCESSING TECHNOLOGY: PRINCIPLES AND PRACTICE Ch. 6 (3d ed. 2009)

EX1087	Williams, *Nutritional Composition of Red Meat*, 64 NUTRITION & DIETETICS: J. OF THE DIETITIANS ASSOC. OF AUSTL. S113 (2007)
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EX1095	Withycombe & Mussinan, *Identification of 2-Methyl-3-Furanthiol in the Steam Distillate from Canned Tuna Fish*, 53 J. FOOD SCI. 658 (1988)
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EX1098	Zyzak et al., *Investigation into the Sensorial and Analytical Differences of Traditional Hamburgers Versus the Plant-Based Analogues*, presentation at ACS Fall 2021, *available at* https://acs.digitellinc.com/acs/sessions/169689/view
EX1099	Mottram, *The Maillard Reaction: Source of Flavour in Thermally Processed Foods*, *in* FLAVOURS AND FRANGRANCES 269-83 (Berger ed., 2007)
EX1100	Ulrich et al., *Investigation of the Boiled Potato Flavor by Human Sensory and Instrumental Methods*, 77 AM. J. POTATO RSCH. 111-17 (2000)
EX1107	*What Gives Meat its Color?*, EXPLORATORIUM: SCIENCE OF COOKING, https://www.exploratorium.edu/cooking/meat/INT-what-meat-color.html

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EX1118	Wang et al., *Reinvestigation of 2-acetylthiazole Formation Pathways in the Maillard Reaction*, 345 FOOD CHEM. 128761 (2021)

EX1119	Boelens & Gemert, *Volatile Character-Impact Sulfur Compounds and Their Sensory Properties*, 18 PERFURMER & FLAVORIST 29-39 (1993)
EX1120	Adam McQueen, *Beyond Meat vs. Impossible Foods: The Very Real Battle Between the Biggest 'Fake-Meat' Competitors*, KLUE, https://klue.com/blog/beyond-meat-vs-impossible-foods-the-very-real-battle-between-the-biggest-fake-meat-competitors
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EX1125	U.S. Patent No. 3,930,044 to van de Rovaart et al., issued December 30, 1975
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EX1129	Mottram, *Volatile Compounds from the Reaction of Cysteine, Ribose, and Phospholipid in Low-Moisture Systems*, 43 J. AGRIC. FOOD CHEM. 984-88 (1995)
EX1133	Hargrove et al., *Characterization of Recombinant Soybean Leghemoglobin a and Apolar Distal Histidine Mutants*, 266 J. MOLECULAR BIOLOGY 1032-42 (1997)
EX1135	Nicola & Leach, *Structural Rearrangements Due to Ligand Binding and Haem Replacement in Myoglobin and Leghaemoglobins*, 78 EUROPEAN J. BIOCHEM. 133-40 (1977)
EX1137	Batt et al., *Expression of Recombinant Bovine β-Lactoglobulin in* Escherichia coli, 54 AGRIC. & BIOLOGICAL CHEM. 949-55 (1990)
EX1138	Jamieson et al., *Cloning and Nucleotide Sequence of the Bovine β-Lactoglobulin Gene*, 61 GENE 85-90 (1987)

EX1139	Weed et al., *Is Hemoglobin an Essential Structural Component of Human Erythrocyte Membranes?*, 42 J. CLINICAL INVESTIGATION 581-88 (1963)
EX1140	U.S. Patent Publication No. US 2008/0008815 A1 to Cho, published January 10, 2008.
EX1141	Evers et al., *Furan Substituted at the Three Position with Sulfur*, *in* PHENOLIC, SULFUR, AND NITROGEN COMPOUNDS IN FOOD FLAVORS SYMPOSIUM 184-93 (1976)
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EX1147	T.L. Stanley, *Impossible Foods Hires a Veteran of Apple Ads to Beef Up its Creative Marketing*, ADWEEK, https://www.adweek.com/brand-marketing/impossible-foods-hires-a-veteran-of-apple-ads-to-beef-up-its-creative-marketing/#:~:text= Impossible%20Foods%20Hires%20a %20Veteran%20of%20Apple%20Ads,record.%20Impossible%20By%20T.L.%20Stanley%20April%2013%2C%202021
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EX1151	Ames, *Control of the Maillard Reaction in Food Systems*, 1 TRENDS IN FOOD SCI. & TECH. 150-54 (1990)
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CERTIFICATE OF SERVICE

Pursuant to 37 C.F.R. § 42.6(e), the undersigned hereby certify that Petitioner's Updated Exhibit List was served on Patent Owner on April 21, 2023 by e-mailing copies to:

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