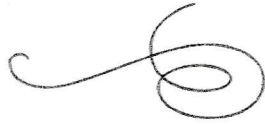
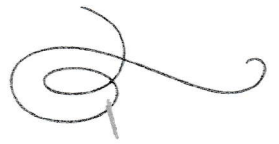


United
States
of
America



To Promote the Progress



of Science and Useful Arts.

The Director

of the United States Patent and Trademark Office has received an application for a patent for a new and useful invention. The title and description of the invention are enclosed. The requirements of law have been complied with, and it has been determined that a patent on the invention shall be granted under the law.

Therefore, this United States

Patent

grants to the person(s) having title to this patent the right to exclude others from making, using, offering for sale, or selling the invention throughout the United States of America or importing the invention into the United States of America, and if the invention is a process, the right to exclude others from using, offering for sale or selling throughout the United States of America, products made by that process, for the term set forth in 35 U.S.C. 154(a)(2) or (c)(1), subject to the payment of maintenance fees as provided by 35 U.S.C. 41(b). See the Maintenance Fee Notice on the inside of the cover.

 Andrew Lerner

DIRECTOR OF THE UNITED STATES PATENT AND TRADEMARK OFFICE



US010702457B2

(12) **United States Patent
Tark**

(10) **Patent No.: US 10,702,457 B2**
(45) **Date of Patent: Jul. 7, 2020**

(54) **METHOD FOR PREPARING VEGETABLE OIL EMULSION BY ULTRASONICATION**

(71) Applicant: **ADHOME CO., LTD.**, Gyeonggi-do (KR)

(72) Inventor: **Jae Hwa Tark**, Seoul (KR)

(73) Assignee: **ADHOME CO., LTD.**, Gyeonggi-Do (KR)

(*) Notice: **Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 228 days.**

(21) Appl. No.: **15/927,358**

(22) Filed: **Mar. 21, 2018**

(65) **Prior Publication Data**

US 2018/0296448 A1 Oct. 18, 2018

(30) **Foreign Application Priority Data**

Apr. 13, 2017 (KR) 10-2017-0047785

(51) **Int. Cl.**

A61K 8/06 (2006.01)
A61K 8/92 (2006.01)
A23L 5/30 (2016.01)
A61K 36/53 (2006.01)
A61Q 19/00 (2006.01)
A61K 8/9789 (2017.01)
A23L 27/12 (2016.01)

(52) **U.S. Cl.**

CPC **A61K 8/062** (2013.01); **A23L 5/32** (2016.08); **A23L 27/12** (2016.08); **A23L 27/13** (2016.08); **A61K 8/922** (2013.01); **A61K 8/9789** (2017.08); **A61K 36/53** (2013.01); **A61Q 19/00** (2013.01); **A61K 2800/10** (2013.01); **A61K 2800/82** (2013.01)

(58) **Field of Classification Search**

CPC **A61K 8/062**; **A61K 8/922**; **A61K 8/9789**;
A61K 36/53; **A23L 5/32**; **A23L 27/12**;
A23L 27/13

See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

2005/0214432 A1 9/2005 Belmar et al.

FOREIGN PATENT DOCUMENTS

KR 1020000068575 11/2000
KR 1020140097932 8/2014
KR 1020150116374 10/2015

OTHER PUBLICATIONS

KR1020140097932 machine translation (Year: 2014).*

* cited by examiner

Primary Examiner — Edward J Cain

(74) *Attorney, Agent, or Firm* — IPLA P.A.; James E. Bame

(57) **ABSTRACT**

Provided is a method for preparing a vegetable oil emulsion including mixing water with a vegetable oil to provide a first mixture (a), and applying ultrasonic waves with a frequency of 25 to 70 kHz to the first mixture to solubilize the first mixture (b). Through treatment of ultrasonic waves with a certain frequency, the method for preparing a vegetable oil emulsion according to the present invention has advantages of significantly easily converting various herbal oils into aqueous emulsions at a high yield, significantly preventing layer-separation between oils and water for a long time, and being widely applicable to a variety of herbal oils.

4 Claims, 7 Drawing Sheets