

اسم

المعيار: البحث العلمي والأنشطة العلمية رقم الوثيقة : 1032 تاريخ الاعتماد: 2019-10-13

بيان اعضاء هيئة التدريس الحاصلين على براءة الاختراع في العام الدراسي

2019-2020

براءة الاختراع	العام	اسم العضو
<ol style="list-style-type: none">1. Method of Synthesizing Doum Nanoparticles .2. Guava Seed (<i>Psidium Guajava</i>) Nanoparticles as Antibacterial Agent.3. Synthesis of Black Eggplant (<i>Solanum Melongena</i>) Skin Antioxidant Nanoparticles.	2019	أ.د. محمد فكرى سراج

عميد الكلية
أ.د. شريف صبري رجب

مدير وحدة الجودة
أ.د. خالد محي الدين



اسم

تاريخ الاعتماد: 2019-10-13

رقم الوثيقة : 1032

المعيار: البحث العلمي والأنشطة العلمية

Publications:

US Patents:

4. Method of Synthesizing Doum Nanoparticles .

MA Awad, AA Hendi, KM Ortashi, HM Yehia, MM Ahmed, HS Ali, [MF Serag El-Din](#), ZK Hassan,

Patent No: US 10,188,116 B1.

Date of patent : Jan. 29, 2019.

5. Guava Seed (*Psidium Guajava*) Nanoparticles as Antibacterial Agent.

HS Ali, RA Alajmi, HM Yehia, [MF Serag El-Din](#), MF Elkhadragey, MA Awad, DM Hasanin, 2019.

Patent No: US 10,206,417 B1.

Date of patent : Feb. 19, 2019.

6. Synthesis of Black Eggplant (*Solanum Melongena*) Skin Antioxidant Nanoparticles.

HM Yehia , [MF Serag El-Din](#), HS Ali, MS Alamri, WA Al-Megrin, MF Elkhadragey, MA Awad, Patent No: US 10,500,244 B1.

Date of patent : Dec. 10, 2019.

7. Methanol Extract of Grape Seed Nanoparticles.

HM Yehia , RA Alajmi, HS Ali, MF Elkhadragey, DM Hasanin, [MF Serag El-Din](#), MA Awad.

Patent No: US 10,542,758 B1.

Date of patent : Jan. 28, 2020

8. Methods of synthesizing Custard Apple Peel Nanoparticles.

HM Yehia , HS Ali, EM Al Olayan, MF Elkhadragey, [MF Serag El-Din](#), MA Awad.

Patent No: US 20/20/0316148 A1.

Date of patent : Oct. 8, 2020.

6. Mangosteen Nanoparticles.

HM Yehia, MA Awad, [MF Serag El-Din](#), HS Ali, RA Alajmi, DM Hasanin, WA Al-Megrin, MF Elkhadragey.

Patent No: US 10,898,533 B1.

Date of patent : Jan. 26, 2021.

عميد الكلية
أ.د. شريف صبري رجب

مدير وحدة الجودة
أ.د. خالد محي الدين



اسم

تاريخ الاعتماد: 2019-10-13

رقم الوثيقة : 1032

المعيار: البحث العلمي والأنشطة العلمية



US010188116B1

(12) **United States Patent**
Awad et al.

(10) **Patent No.:** US 10,188,116 B1
(45) **Date of Patent:** Jan. 29, 2019

(54) **METHOD OF SYNTHESIZING DOUM NANOPARTICLES**

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(71) Applicant: **KING SAUD UNIVERSITY**, Riyadh (SA)

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KR 1020150082734 A 7/2015
WO 2016076691 A2 5/2016

(72) Inventors: **Manal Ahmed Gasmelseed Awad**, Riyadh (SA); **Awatif Ahmed Hendi**, Riyadh (SA); **Khalid Mustafa Osman Ortashi**, Riyadh (SA); **Hany Mohamed Yehia**, Cairo (EG); **Mohamed Mahmoud Hafez Ahmed**, Cairo (EG); **Hatem Salama Mohamed Ali**, Cairo (EG); **Mohamed Fekry Serag El-Din**, Minuyfiya (EG); **Zeinab Korany Mohamed Hassan**, Cairo (EG)

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(73) Assignee: **King Saud University**, Riyadh (SA)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **15/855,332**

(22) Filed: **Dec. 27, 2017**

(51) **Int. CL**
A61K 36/889 (2006.01)
A01N 65/40 (2009.01)
A01N 25/12 (2006.01)

(52) **U.S. CL**
CPC **A01N 65/40** (2013.01); **A01N 25/12** (2013.01)

(58) **Field of Classification Search**
None
See application file for complete search history.

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Primary Examiner — Christopher R Tate
Assistant Examiner — Russell G Fiebig
(74) *Attorney, Agent, or Firm* — Richard C. Litman

(57) **ABSTRACT**

Doum nanoparticles can be synthesized by drying Doum fruit, reducing the dried Doum fruit to a powder or flour, and subjecting the powder to acid hydrolysis or alcohol hydrolysis to provide Doum nanoparticles. The Doum nanoparticles can be used as a food preservative. When compared to bulk Doum particles, the Doum nanoparticles can provide substantially increased antibacterial activity.

1 Claim, 2 Drawing Sheets



اسم

تاريخ الاعتماد: 2019-10-13

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عميد الكلية
أ.د. شريف صبري رجب

مدير وحدة الجودة
أ.د. خالد محي الدين

اسم

المعيار: البحث العلمي والأنشطة العلمية رقم الوثيقة: 1032 تاريخ الاعتماد: 2019-10-13



US010206417B1

(12) **United States Patent**
Ali et al.

(10) Patent No.: **US 10,206,417 B1**
(45) Date of Patent: **Feb. 19, 2019**

(54) **GUAVA SEED (*PSIDIUM GUAJAVA*) NANOPARTICLES AS ANTIBACTERIAL AGENT**

(71) Applicant: **KING SAUD UNIVERSITY**, Riyadh (SA)

(72) Inventors: **Hatem Salama Mohamed Ali**, Cairo (EG); **Reem Atta Alajmi**, Riyadh (SA); **Hany Mohamed Yehia**, Riyadh (SA); **Mohamed Fekry Serag El-Din**, Shebin El-Kom (EG); **Manal Fawzy Elkhadragy**, Cairo (EG); **Manal Ahmed Gasmelseed Awad**, Riyadh (SA); **Dina Mahmoud Metwally Hasanin**, Zagzig (EG)

(73) Assignee: **King Saud University**, Riyadh (SA)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **16/003,042**

(22) Filed: **Jun. 7, 2018**

(51) **Int. Cl.**
B65D 81/28 (2006.01)
A23L 3/3472 (2006.01)

(52) **U.S. Cl.**
CPC *A23L 3/3472* (2013.01); *A23V 2002/00* (2013.01); *B65D 81/28* (2013.01)

(58) **Field of Classification Search**
None
See application file for complete search history.

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Primary Examiner — Isaac Shomer

(74) Attorney, Agent, or Firm — Richard C. Litman

(57) **ABSTRACT**

The guava seed (*Psidium guajava*) nanoparticles as an antibacterial agent are prepared from guava seeds that have been washed, dried, and ground to powder of less than 1 mm diameter. The powder is reduced to nanoparticle size (less than 100 nm diameter) by adding the powder to a solution of concentrated hydrochloric acid (38% w/w) and stirring the mixture at 3000 rpm at room temperature. The resulting nanoparticles are filtered through a Millipore membrane filter and dried. Agar well diffusion studies showed significant antibacterial activity against various Gram positive and negative species commonly implicated in food contamination. Further testing showed the guava seed nanoparticles have significant antioxidant and radical scavenging content, suggesting that guava seed nanoparticles may serve as an antibacterial agent.

5 Claims, 1 Drawing Sheet

عميد الكلية
أ.د. شريف صبري رجب

مدير وحدة الجودة
أ.د. خالد محي الدين



اسم

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اسم

المعيار: البحث العلمي والأنشطة العلمية رقم الوثيقة: 1032 تاريخ الاعتماد: 2019-10-13



US010500244B1

(12) **United States Patent**
Yehia et al.

(10) **Patent No.:** US 10,500,244 B1
(45) **Date of Patent:** Dec. 10, 2019

(54) **SYNTHESIS OF BLACK EGGPLANT**
(SOLANUM MELONGENA) SKIN
ANTIOXIDANT NANOPARTICLES

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Azevedo, L., et al., "Differential response related to genotoxicity between eggplant (*Solanum melongena*) skin aqueous extract and its main purified anthocyanin (delphinidin) in vivo," Food and Chemical Toxicology, 45(5): 852-858, 2007.

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Primary Examiner — Rosanne Kosson

(74) Attorney, Agent, or Firm — Richard C. Litman;
Nath, Goldberg & Meyer

(57) **ABSTRACT**

The black eggplant skin antioxidant nanoparticles may be manufactured by extracting black eggplant skins in a solvent, spraying the black eggplant skin extracts into boiling water under ultrasonic conditions to produce a first mixture, sonicating the mixture, stirring the mixture, and drying the mixture to obtain black eggplant skin antioxidant nanoparticles. In an embodiment, the black eggplant skin may be skin of *Solanum melongena*. In an embodiment, the black eggplant skin nanoparticles may have improved antibacterial or antioxidant properties.

10 Claims, 3 Drawing Sheets

(71) Applicant: **KING SAUD UNIVERSITY**, Riyadh (SA)

(72) Inventors: **Hany Mohamed Yehia**, Helwan (EG); **Mohamed Fekry Serag El-Din**, Riyadh (SA); **Hatem Salama Mohamed Ali**, Cairo (EG); **Mohamed Saleh Alamri**, Riyadh (SA); **Wafa Abdullah Al-Megrin**, Riyadh (SA); **Manal Fawzy Elkhadragey**, Hewan (EG); **Manal Ahmed Gasmelseed Awad**, Riyadh (SA)

(73) Assignee: **King Saud University**, Riyadh (SA)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

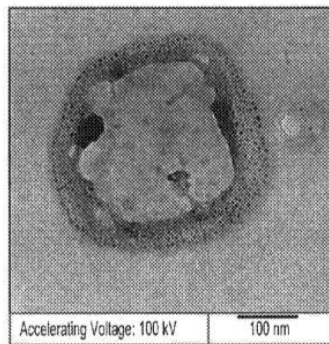
(21) Appl. No.: **16/408,992**

(22) Filed: **May 10, 2019**

(51) **Int. Cl.**
A61K 36/81 (2006.01)
A61K 9/16 (2006.01)

(52) **U.S. Cl.**
CPC **A61K 36/81** (2013.01); **A61K 9/16** (2013.01); **A61K 9/1682** (2013.01); **A61K 2236/33** (2013.01); **A61K 2236/39** (2013.01); **A61K 2236/51** (2013.01)

(58) **Field of Classification Search**
CPC **A61K 36/81**
See application file for complete search history.



عميد الكلية
أ.د. شريف صبري رجب

مدير وحدة الجودة
أ.د. خالد محي الدين

اسم

المعيار: البحث العلمي والأنشطة العلمية رقم الوثيقة : 1032 تاريخ الاعتماد: 2019-10-13



US 20200316148A1

(19) **United States**
 (12) **Patent Application Publication** (10) **Pub. No.: US 2020/0316148 A1**
 YEHIA et al. (43) **Pub. Date: Oct. 8, 2020**

(54) **METHOD OF SYNTHESIZING CUSTARD APPLE PEEL NANOPARTICLES**

(71) Applicant: **KING SAUD UNIVERSITY, RIYADH (SA)**

(72) Inventors: **HANY M. YEHIA, CAIRO (EG); HATEM SALAMA ALI, CAIRO (EG); EBTESAM MOHAMMED AL OLAYAN, RIYADH (SA); MANAL FAWZY ELKHADRAGY, RIYADH (SA); MOHAMED FEKRY MANSOUR SERAG EL DIN, RIYADH (SA); MANAL AHMED AWAD, RIYADH (SA)**

(73) Assignee: **KING SAUD UNIVERSITY**

(21) Appl. No.: **16/376,231**

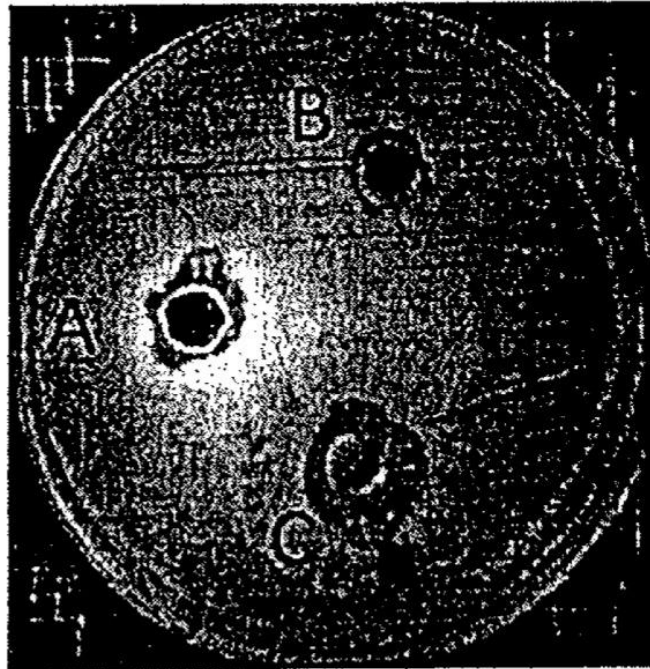
(22) Filed: **Apr. 5, 2019**

Publication Classification

(51) **Int. Cl.**
A61K 36/185 (2006.01)
A61K 9/51 (2006.01)
 (52) **U.S. Cl.**
 CPC **A61K 36/185** (2013.01); **A61K 9/51** (2013.01); **B82Y 5/00** (2013.01); **A61K 2236/51** (2013.01); **A61K 2236/33** (2013.01)

(57) **ABSTRACT**

The custard apple peel nanoparticles may be manufactured by extracting custard apple peels in a solvent, spraying the custard apple peel extracts into boiling water under ultrasonic conditions to produce a first mixture, sonicating the mixture, stirring the mixture, and drying the mixture to obtain custard apple peel nanoparticles. In an embodiment, the custard apple peel may be peel of *Amnona reticulata*. In an embodiment, the custard apple peel nanoparticles may have improved antibacterial or antioxidant properties.



Yersinia enterocolitica



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تاريخ الاعتماد: 2019-10-13

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عميد الكلية
أ.د. شريف صبري رجب

مدير وحدة الجودة
أ.د. خالد محي الدين

اسم

المعيار: البحث العلمي والأنشطة العلمية رقم الوثيقة: 1032 تاريخ الاعتماد: 13-10-2019



US010898533B1

(12) **United States Patent**
Yehia et al.

(10) Patent No.: **US 10,898,533 B1**
(45) Date of Patent: **Jan. 26, 2021**

(54) **MANGOSTEEN NANOPARTICLES**

(56) **References Cited**

(71) Applicant: **KING SAUD UNIVERSITY**, Riyadh (SA)

U.S. PATENT DOCUMENTS

(72) Inventors: **Hany Mohamed Yehia**, Riyadh (SA); **Manal Ahmed Gasmelseed Awad**, Riyadh (SA); **Mohamed Fekry Serag El-Din**, Shebin El-Kom (EG); **Hatem Salama Mohamed Ali**, Cairo (EG); **Reem Atta Alajmi**, Cairo (EG); **Dina Mahmoud Metwally Hasanin**, Zagazig (EG); **Wafa Abdullah Al-Megrin**, Riyadh (SA); **Manal Fawzy Elkhadragey**, Riyadh (SA)

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(73) Assignee: **KING SAUD UNIVERSITY**, Riyadh (SA)

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

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(21) Appl. No.: **16/752,669**

(22) Filed: **Jan. 26, 2020**

(51) **Int. Cl.**
A61K 36/38 (2006.01)
A61K 9/51 (2006.01)
A61P 31/04 (2006.01)

(52) **U.S. Cl.**
CPC **A61K 36/38** (2013.01); **A61K 9/5192** (2013.01); **A61P 31/04** (2018.01); **A61K 2236/17** (2013.01)

(58) **Field of Classification Search**
CPC A01N 37/36; A01N 25/34; A01N 65/00; A01N 59/16; A01N 65/08; A61K 9/14; A61K 2236/39; A61K 36/185; A61K 9/16; A61K 2236/51; A61K 9/5192; A61K 2236/00; A61K 31/336; A61K 33/00; A61K 9/1682; A61K 9/5115; A61K 9/5138; A61K 2236/15; A61K 2236/31; A61K 2236/33; A61K 2236/331; A61K 2236/333; A61K 2236/53; A61K 31/353; A61K 33/24; A61K 33/30; A61K 35/00; A61K 35/741; A61K 36/31; A61K 36/42; A61K 36/53; A61K 36/81; A61K 38/00; A61K 9/19; A61K 9/5026; A61K 9/5036; A61K 9/5073; A61K 9/5089; A61K 9/5146; A61K 9/5161; A61K 9/7007; A61K 36/38; A61K 2236/17; B82Y 40/00; B82Y 5/00; B82Y 30/00; C07J 63/008; C07J 53/002; A61P 31/04; A61P 35/00; A61P 1/16; A61P 31/10; A61P 39/06; A23K 10/18; A23L 33/00; A23L 33/135; B22F 1/0044; B22F 2009/245; B22F 2301/255; B22F 2998/10; B22F 9/24; B29C 67/00; C01B 2202/04; C01B 2202/06; C01B 32/152; C01B 32/16; C01B 32/174; C01G 9/02; C01P 2004/16; C01P 2004/32; C01P 2004/62; C01P 2004/64; C07C 7/005; C12P 3/00; D21H 13/50

See application file for complete search history.

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"Natural Home Cures Freeze Dried Rich Pericarp Mangosteen," Copyright © 2019 Welcome to Natural Home Cures Freeze Dried Rich Pericarp Mangosteen, website: <http://www.mymangosteencures.net> last accessed: Jan. 8, 2020.
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Primary Examiner — Aaron J Kosar

(74) Attorney, Agent, or Firm — Nath, Goldberg & Meyer; Richard C. Litman

(57) **ABSTRACT**

Mangosteen nanoparticles and methods of synthesizing Mangosteen nanoparticles are provided. The Mangosteen nanoparticles may be synthesized by drying Mangosteen, *Garcinia mangostana* fruit, grinding the dried Mangosteen to form powdered Mangosteen, suspending the powdered Mangosteen in a solvent to form a first Mangosteen solution, spraying the Mangosteen solution into boiling water under ultrasonic conditions to form a second Mangosteen solution, resting the second Mangosteen solution at room temperature (about 20° C.), and freeze-drying the second Mangosteen solution to obtain Mangosteen nanoparticles. The drying step may include either air-drying or freeze-drying the Mangosteen. The Mangosteen fruit peel may be used in the drying step instead of the inner Mangosteen fruit. The resulting nanoparticles may be used in pharmaceutical compositions, and may be useful for their antioxidant and antibacterial activities.

19 Claims, 4 Drawing Sheets

عميد الكلية
أ.د. شريف صبري رجب

مدير وحدة الجودة
أ.د. خالد محي الدين



اسم

تاريخ الاعتماد: 2019-10-13

رقم الوثيقة : 1032

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