

اسم المعيار: البحث العلمي والأنشطة العلمية رقم الوثيقة : 1042 تاريخ الاعتماد 8-9-2021

بيان أعضاء هيئة التدريس الحاصلين على براءة الاختراع في العام الدراسي

2021-2020

براءة الاختراع	العام	اسم العضو
1. Methanol Extract of Grape Seed Nanoparticles. 2. Methods of synthesizing Custard Apple Peel Nanoparticiles.	2020	أ.د. محمد فكرى سراج
3. Mangosteen Nanoparticiles	2021	

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اسم المعيار: البحث العلمي والأنشطة العلمية رقم الوثيقة : 1042 تاريخ الاعتماد 8-9-2021

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.

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(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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(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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Aamer, "Characteristics of aqueous doum fruit extract and its utilization in some novel products," Annals of Agricultural Sciences, vol. 61, Issue 1 Jun. 2016, pp. 25-33.

(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.

(56) **References Cited**

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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



تاريخ الاعتماد 8-9-2021

رقم الوثيقة : 1042

اسم المعيار: البحث العلمي والأنشطة العلمية

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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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(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

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(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**

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

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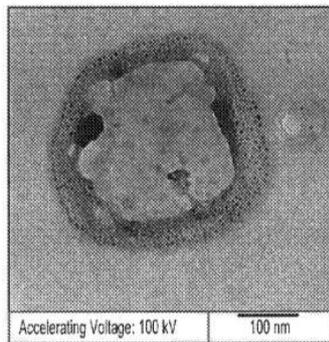
Primary Examiner — Rosanne Kosson

(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



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 YEHIA et al. (43) **Pub. Date: Oct. 8, 2020**

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

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

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

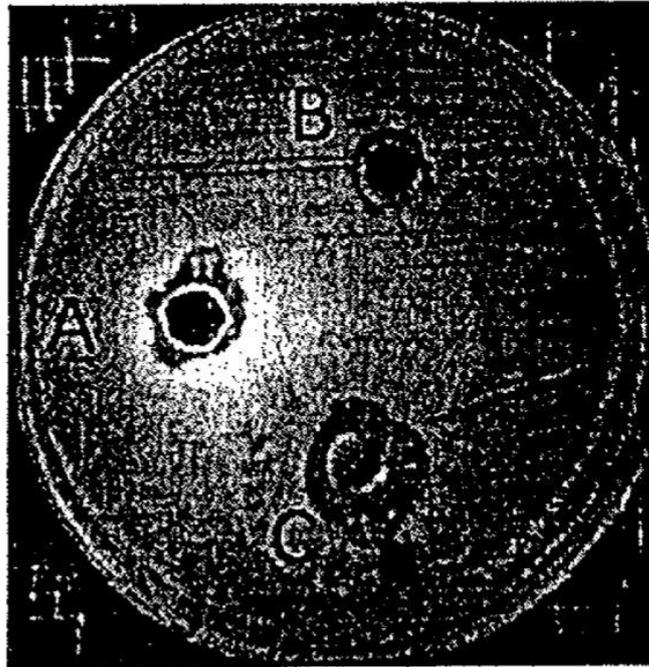
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 (52) **U.S. Cl.**
 CPC **A61K 36/185** (2013.01); **A61K 9/51** (2013.01); **B82Y 5/00** (2013.01); **A61K 2236/51** (2013.01); **A61K 2236/33** (2013.01)

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

(10) Patent No.: **US 10,898,533 B1**
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(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**

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(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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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

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