

Search > Results > Fabrication and characteri...

Free Full Text from Publisher



Export ▾

Add To Marked List

< 1 of 1 >

Fabrication and characterization of Agarwood extract-loaded nanocapsules and evaluation of their toxicity and anti-inflammatory activity on RAW 264.7 cells and in zebrafish embryos

By: Eissa, MA (Eissa, Manar A.) ^{1, 2}; Hashim, YZHY (Hashim, Yumi Z. H. -Y.) ¹; Nasir, MHM (Mohd Nasir, Mohd Hamzah) ^{3, 4}; Nor, YA (Nor, Yusilawati Ahmad) ⁵; Salleh, HM (Salleh, Hamzah Mohd.) ¹; Isa, MLM (Isa, Muhammad Lokman Md.) ⁶; Abd-Azziz, SSS (Abd-Azziz, Saripah S. S.) ⁷; Abd Warif, NM (Abd Warif, Nor Malia) ⁸; Ramadan, E (Ramadan, Eman) ^{2, 9}; Badawi, NM (Badawi, Noha M.) ^{2, 10}

DRUG DELIVERY

Volume: 28 Issue: 1 Page: 2618-2633

DOI: 10.1080/10717544.2021.2012307

Published: JAN 1 2021

Document Type: Article

Abstract

Aquilaria malaccensis has been traditionally used to treat several medical disorders including inflammation. However, the traditional claims of this plant as an anti-inflammatory agent has not been substantially evaluated using modern scientific techniques. The main objective of this study was to evaluate the anti-inflammatory effect of Aquilaria malaccensis leaf extract (ALEX-M) and potentiate its activity through nano-encapsulation. The extract-loaded nanocapsules were fabricated using water-in-oil-in-water (w/o/w) emulsion method and characterized via multiple techniques including DLS, TEM, FTIR, and TGA. The toxicity and the anti-inflammatory activity of ALEX-M and the extract-loaded nanocapsules (ALEX-M-PNCs) were evaluated in-vitro on RAW 264.7 macrophages and in-vivo on zebrafish embryos. The nanocapsules demonstrated spherical shape with mean particle diameter of 167.13 +/- 1.24 nm, narrow size distribution (PDI = 0.29 +/- 0.01), and high encapsulation efficiency (87.36 +/- 1.81%). ALEX-M demonstrated high viability at high concentrations in RAW 264.7 cells and zebrafish embryos, however, ALEX-M-PNCs showed relatively higher cytotoxicity. Both free and nanoencapsulated extract expressed anti-inflammatory effects through significant reduction of the pro-inflammatory mediator nitric oxide (NO) production in LPS/IFN gamma-stimulated RAW 264.7 macrophages and zebrafish embryos in a concentration-dependent manner. The findings highlight that ALEX-M can be recognized as a potential anti-inflammatory agent, and its anti-inflammatory activity can be potentiated by nano-encapsulation. Further studies are warranted toward investigation of the mechanistic and immunomodulatory roles of ALEX-M.

Citation Network

In Web of Science Core Collection

0
Citations

Create citation alert

Cited References

96

[View Related Records](#)

Use in Web of Science

Web of Science Usage Count

0

Last 180 Days

0

Since 2013

[Learn more](#)

This record is from:

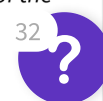
Web of Science Core Collection

- Science Citation Index Expanded (SCI-EXPANDED)

Suggest a correction

If you would like to improve the quality of the data in this record, please [Suggest a correction](#)

32



Keywords

Author Keywords: [Aquilaria malaccensis](#); [polymeric nanocapsules](#); [anti-inflammatory](#); [RAW 264](#); [7](#); [zebrafish](#)

Keywords Plus: [TRAGACANTH-GUM BIOPOLYMER](#); [IN-VITRO](#); [NANOPARTICLES PREPARATION](#); [CHITOSAN NANOPARTICLES](#); [ENCAPSULATION](#); [INFLAMMATION](#); [SUPPRESSION](#); [ANTIOXIDANT](#); [MECHANISMS](#); [FUCOIDAN](#)

Author Information

Corresponding Address: Eissa, Manar A.(corresponding author)

▼ Int Islamic Univ Malaysia IIUM, Int Inst Halal Res & Training INHART, Kuala Lumpur 53100, Malaysia

Addresses:

▼ ¹ Int Islamic Univ Malaysia IIUM, Int Inst Halal Res & Training INHART, Kuala Lumpur 53100, Malaysia

▲ ² British Univ Egypt BUE, Ctr Drug Res & Dev CDRD, Cairo, Egypt

Affiliation

Egyptian Knowledge Bank (EKB)

British University in Egypt

▼ ³ Int Islamic Univ Malaysia IIUM, Dept Biotechnol, Kulliyah Sci, Kuantan, Pahang, Malaysia

▼ ⁴ Int Islamic Univ Malaysia IIUM, Kulliyah Sci, Cent Res & Anim Facil CREAM, Kuantan, Pahang, Malaysia

▼ ⁵ Int Islamic Univ Malaysia IIUM, Kulliyah Sci, Dept Biotechnol Engn, Kuala Lumpur, Malaysia

[...more addresses](#)

E-mail Addresses: manareissa1210@gmail.com

Categories/Classification

Research Areas: [Pharmacology & Pharmacy](#)

Funding**Funding agency**

Fundamental Research Grant

Scheme (FRGS) - Ministry of Higher Education in Malaysia

Grant number

FRGS/1/2019/WAB11/UIAM/02/4

Funding Table

[View funding text](#)

[+ See more data fields](#)

Journal information

[DRUG DELIVERY](#)

ISSN: 1071-7544

eISSN: 1521-0464

Current Publisher: TAYLOR & FRANCIS LTD, 2-4 PARK SQUARE, MILTON PARK, ABINGDON OX14 4RN, OXON, ENGLAND

Journal Impact Factor: [Journal Citation Report™](#)

Research Areas: [Pharmacology & Pharmacy](#)

Web of Science Categories: [Pharmacology & Pharmacy](#)

6.419

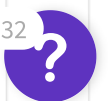
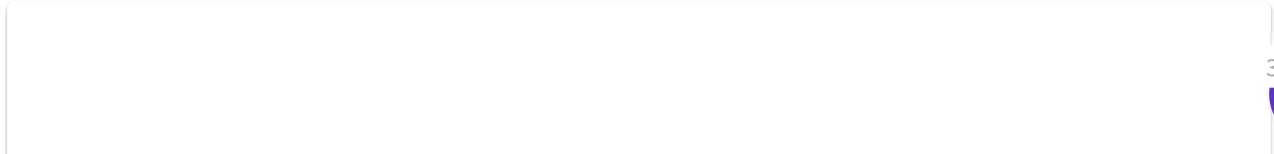
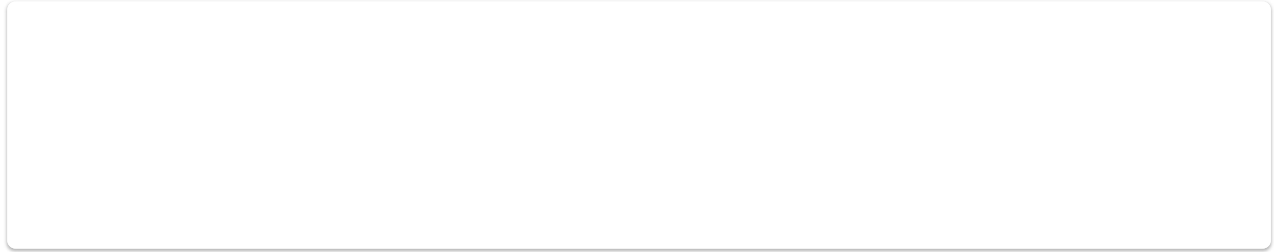
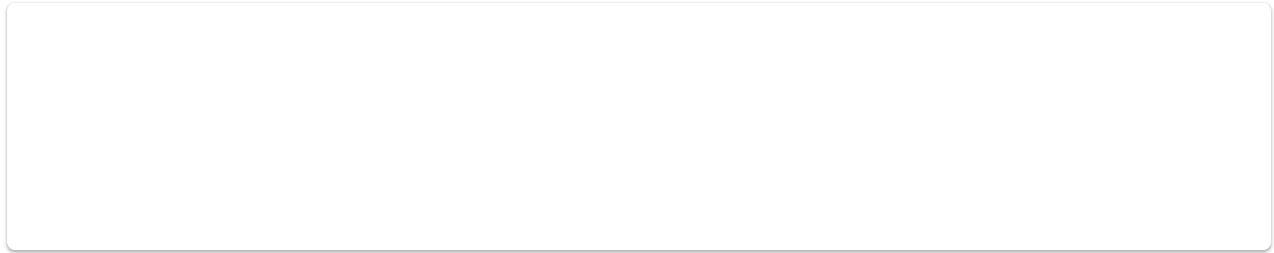
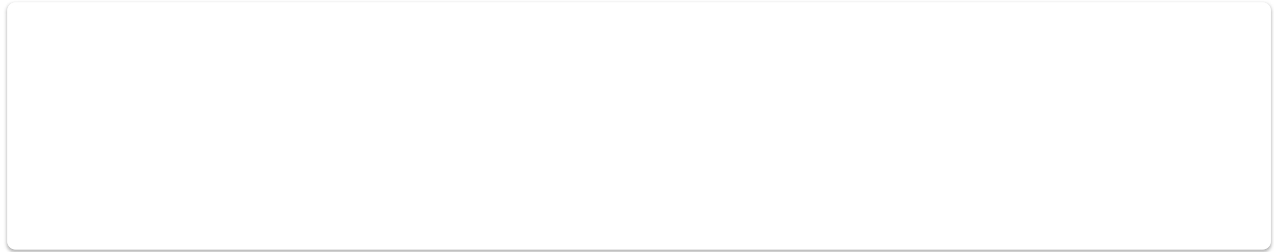
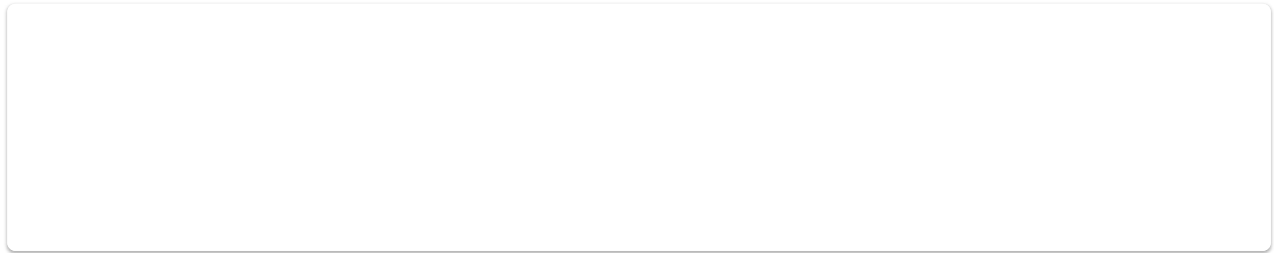
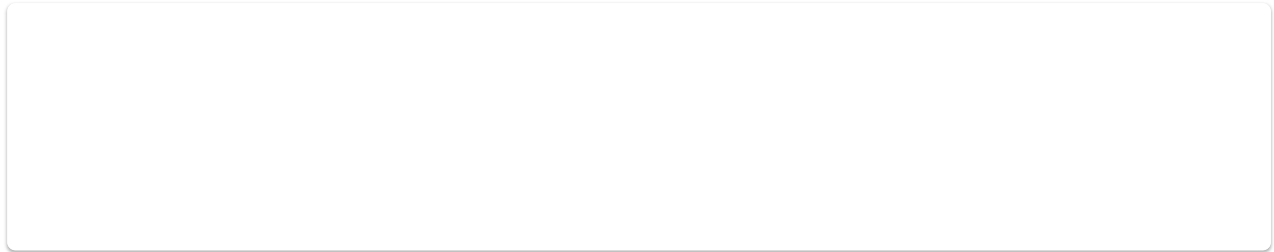
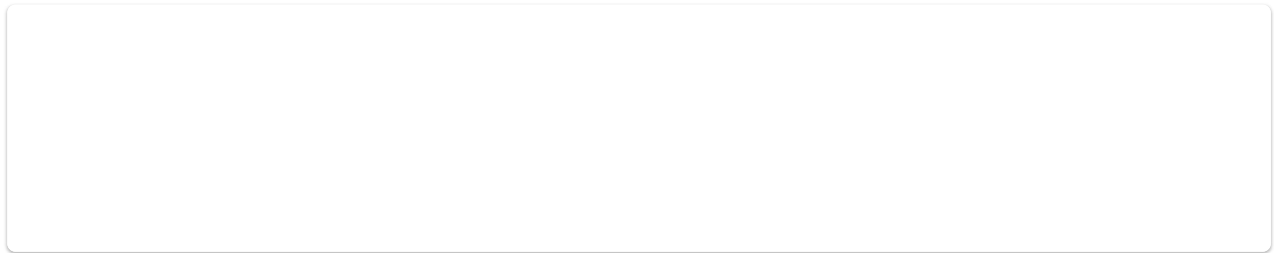
**Journal
Impact
Factor™
(2020)**

96 Cited References

Showing 30 of 96

[View as set of results](#)

(from Web of Science Core Collection)





© 2021
Clarivate
Training
Portal
Product
Support

Data
Correction
Privacy
Statement
Newsletter

Copyright
Notice
Cookie
Policy
Terms of
Use

Manage
cookie
preferences

Follow
Us
 