

Free Full Text from Publisher

Look Up Full Text

Full Text from Publisher

Export...

Add to Marked List

1 of 1

## Uninfected agarwood branch extract possess cytotoxic and inhibitory effects on MCF-7 breast cancer cells

By: Abbas, P (Abbas, Phirdaos)<sup>[1]</sup>; Hashim, YZHY (Hashim, Yumi Zuhani Has-Yun)<sup>[2]</sup>; Mohd Salleh, H (Mohd Salleh, Hamzah)<sup>[2]</sup>

JOURNAL OF RESEARCH IN PHARMACY

Volume: 23 Issue: 1 Pages: 120-129

DOI: 10.12991/jrp.2018.116

Published: 2019

Document Type: Article

### Abstract

Apart from the highly sought agarwood resin primarily for perfumery industry, agarwood or gaharu (*Aquilaria* spp.) in general has been one of basic components in traditional medicine including Ayurvedic, Traditional Chinese Medicine and other communities in the Asian region. While the resin is formed in infected trees, this present study reported the cytotoxicity and attachment inhibition effects of leaf and branch extracts from uninfected agarwood tree against breast cancer cells. Qualitative extraction screening process was first conducted to screen for suitable extraction solvents and parts of plant (leaf or branch). Then, the in vitro anti-cancer screening assays including cytotoxicity and attachment assays were conducted. Branch sample extracted using ethanol and distilled water resulted in higher yield and more potent cancer inhibiting effects as compared to other solvents. Crude extract obtained after drying process using ethanol as solvent yielded 9.47 % g/g (branch) and 13.2 % g/g (leaf); distilled water as solvent yielded 9.33 % g/g (branch) and 12.8 % g/g (leaf), respectively. However, branch extract exhibited more potent cancer-inhibiting effects with IC50 of 23 µg/mL (ethanol) and 38 µg/mL (distilled water) as compared to leaf (no intersection points in the plot). To this end, it can be concluded that extracts from uninfected agarwood tree (*Aquilaria subintegra*) possesses cytotoxic and anti-attachment effects on MCF-7 breast cancer cells with ethanolic branch extract being the most promising. The screening and selection of extraction solvent and plant type are crucial steps towards cost-effective extraction and further bioprocessing of bioactive compounds from agarwood tree.

### Keywords

Author Keywords: [Agarwood](#); [cytotoxic](#); [Aquilaria subintegra](#); [anticancer](#)

### Author Information

Reprint Address: Hashim, YZHY (reprint author)

Int Inst Halal Res & Training INHART, Level 3,KICT Bldg,POB 10, Kuala Lumpur 50728, Malaysia.

### Addresses:

[ 1 ] Kulliyah Engr, Dept Biotechnol Engr, POB 10, Kuala Lumpur 50728, Malaysia

[ 2 ] Int Inst Halal Res & Training INHART, Level 3,KICT Bldg,POB 10, Kuala Lumpur 50728, Malaysia

E-mail Addresses: [yumi@iium.edu.my](mailto:yumi@iium.edu.my)

### Funding

Funding Agency	Grant Number
Fundamental Research Grant Scheme of Malaysia	FRGS13-084-0325
IIUM Research and Innovation Grant Scheme	RIGS17-145-0720
Department of Biotechnology Engineering, Kulliyah of Engineering, IIUM	
International Institute for Halal Research and Training (INHART, IIUM)	

[View funding text](#)

### Publisher

MARMARA UNIV, GOZTEPE CAMPUS, KADIKOY, ISTANBUL, 34722, TURKEY

### Citation Network

In Web of Science Core Collection

0

Times Cited

[Create Citation Alert](#)

37

Cited References

[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

- Emerging Sources Citation Index

[Suggest a correction](#)

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

## Categories / Classification

Research Areas: Pharmacology &amp; Pharmacy

Web of Science Categories: Pharmacology &amp; Pharmacy

[See more data fields](#)

◀ 1 of 1 ▶

## Cited References: 37

Showing 30 of 37 [View All in Cited References page](#)

(from Web of Science Core Collection)

1. Title: [not available] Times Cited: 2  
By: Akter, N; Neelim, AZ.  
Agarwood Plantation at BRAC Tea Estate: Introduction, Environmental Factors and Financial Analysis Published: 24. 2008  
Publisher: BRAC Research and Evaluation Division, Dhaka, Bangladesh
2. Title: [not available] Times Cited: 1  
By: Barden, A; Mulliken, T; Song, M; et al.  
Heart of the Matter: Agarwood Use and Trade and CITES Implementation for Aquilaria malaccensis Volume: 52 Published: 2000  
Publisher: Traffic International  
[\[Show additional data\]](#)
3. **A dictionary of the economic products of the malay peninsula, Government of Malaysia and Singapore** Times Cited: 169  
By: Burkill, I. H.  
Ministry of Agriculture and Cooperatives, Government of Malaysia and Singapore Published: 1935  
Publisher: Ministry of Agriculture and Cooperatives, Kuala Lumpur, Malaysia
4. Title: [not available] Times Cited: 19  
By: Chakrabarty, K; Kumar, A; Menon, V.  
Trade in agarwood Published: 1994  
Publisher: TRAFFIC India and WWF-India, New Delhi
5. **Flavonoids from the stems of Aquilaria sinensis** Times Cited: 10  
By: Chen Dong; Bi Dan; Song Yue-Lin; et al.  
CHINESE JOURNAL OF NATURAL MEDICINES Volume: 10 Issue: 4 Pages: 287-291 Article Number: 1672-3651(2012)10:4<287:FFTSOA>2.0.TX;2-#  
Published: JUL 2012
6. **Analgesic and anti-inflammatory activity of heartwood of Aquilaria agallocha in laboratory animals** Times Cited: 4  
By: Chitre, T.; Bhutada, P.; Nandakumar, K.; et al.  
Pharmacologyonline Volume: 1 Pages: 288-298 Published: 2007  
[\[Show additional data\]](#)
7. Title: [not available] Times Cited: 6  
By: Clifford, T.  
Tibetan Buddhist Medicine and Psychiatry: The Diamond Healing Published: 1994  
Publisher: Motilal Banarsidass, Delhi
8. **Bioactive essential oils from Aquilaria crassna for cancer prevention and treatment** Times Cited: 5  
By: Dahham, S.S.; Ahamed, M.B.K.; Saghir, S.M.; et al.  
Glob. J. Adv. Pure Appl. Sci. Volume: 4 Pages: 26-31 Published: 2014  
[\[Show additional data\]](#)
9. **Combined Crystallization and Drying in a Pilot-Scale Spray Dryer** Times Cited: 18  
By: Das, Debolina; Langrish, Timothy A. G.  
DRYING TECHNOLOGY Volume: 30 Issue: 9 Pages: 998-1007 Published: 2012
10. Title: [not available] Times Cited: 29  
By: Freshney, R. I.