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Uninfected agarwood branch extract possess cytotoxic and inhibitory effects on mcf-7 breast cancer cells (Article) (Open Access)

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Abstract

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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. © 2019 Marmara University Press.

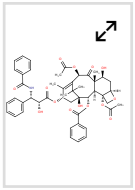
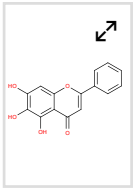
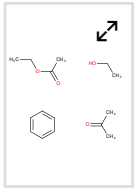
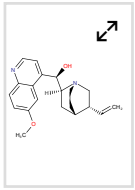
SciVal Topic Prominence

Topic: Thymelaeaceae | Aquilaria | Agarwood formation

Prominence percentile: 87.159

Chemistry database information

Substances





sulforhodamine B

Author keywords

Agarwood | Anticancer | Aquilaria subintegra | Cytotoxic

Indexed keywords

EMTREE drug terms: Aquilaria extract | plant extract | sulforhodamine B | unclassified drug

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EMTREE medical terms:

Aquilaria | Article | breast adenocarcinoma cell line | breast cancer | cancer inhibition | cancer screening | cell adhesion assay | cell growth | cell viability | cell viability assay | controlled study | cytotoxicity | human cell | IC50 | in vitro study | MCF-7 cell line | medicinal plant | nonhuman | optical density | plant leaf | solvent extraction | traditional medicine

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