Document details

Back to results | 1 of 1

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Agarwood Leaf essential oil characterization and effects on MCF-7 breast cancer cells (Article)

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Abstract

View references (35)

Breast cancer continues to remain as the leading cause of cancer mortality among women worldwide. Agents for prevention and cure for breast cancer are contiuously being researched. In particular, agarwood essential oil from resin infiltrated heartwood has been reported to have substantial evidences of medicinal benefits. Nevertheless, there is very limited report on agarwood leaf essential oil (ALEO). Hence, this present study was conducted to evaluate the physicochemical properties, chemical constituents and anticancer activity of ALEO. ALEO was observed to be of pale-yellow colour with sweet smell. Other physicochemical properties include refractive index of 1.44, specific gravity of 0.886, saponification value of 131.88 mg KOH/g, acid value of 2.80 mg KOH/g and iodine value of 105.07 gI_2/100g. The profiling of chemical constituents using gas chromatography-mass spectrometry (GCMS) revealed 19 compounds. Hexadecanoic acid was the major compound (64.41%). The biomarkers of agarwood; azulene (0.619%) and guaiol (0.2997%) were also detected. ALEO was tested for anticancer activity against MCF-7 cancer cells using WST-8 assay. ALEO showed the IC_{50} value of 31% (v/v) against MCF-7 cells after 36 hours of treatment. In conclusion, this study provides information on ALEO physicochemical properties and chemical constituents that can be used as benchmark for quality assurance as well as proof that ALEO holds a potential as anticancer agent. © 2018, Insight Society.

SciVal Topic Prominence

Topic: Thymelaeaceae | Chromones | agarwood formation

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Author keywords

Agarwood leaf | Breast cancer | Essential oil | GCMS | MCF-7

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