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Biocidal And Medicinal Properties of a Triterpene From the Bark of *Melaleuca cajuputi*

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Abstract

A triterpene compound 3 beta- betulinic acid has been isolated from the bark of Melaleuca cajuputi. The compound showed larvicidal activity against Aedes albopictus mosquito larvae.

Key words: Triterpene, betulinic acid, *Molaleuca cajuputi, Aedes albopictus*

Introduction

Melaleuca cajuputi Powell (Myretaceae) is commonly found in Peninsular Malaysia specially along the western coast and locally it is called 'gelam', punk tree or paper bark tree. Two species *Melaleuca genistifolia* and *M. leucadendron* are also found in the Punjab province of Pakistan (Stewart, 1972).

Uses in traditional Medicines

Its importance as medicinal plant is well established fact because of cajuput oil, which is used for headache, toothache, rheumatism, cramp, in healing of fresh wounds as antiseptic and can be used as insect repellent (Lassak and Carthy, 1983).

Previously isolated constituents

Ursolic acid and betulinic acid from flower and seed extracts (Ahmad et al., 1997; Ahmad *et al.*, 1999), nerolidol (Doskotch *et al.*, 1997) 3,5-dimethyl-4,6-di-o-methylphloro-acetophenone (Lowery, 1973) .

Materials And Methods

The papery bark of the plant *M. cajuputi* weighing 345 g were soaked in methanol for 24 hours. The extract was concentrated in vacuo. The crude extract of the bark was introduced into silica gel (Merok) column. The column was eluted with increasing polarity of dichloromethane and methanol solvent system. The mobile phase dichloromethane-methanol (98:2 v/v) furnished crystalline solid (1) 0.239 g having m.p 279-281 ^{0}C.

IR bands (KBr)

3489, 3000-2500, 1685, 1640, 1380, 1040, and 880 cm^{-1}.

EIMS: (70 eV) m/z (%)

456 (M^{+} 40), 438 (14), 248(79), 220(23), 207(48), 189(100),and 75 (35).

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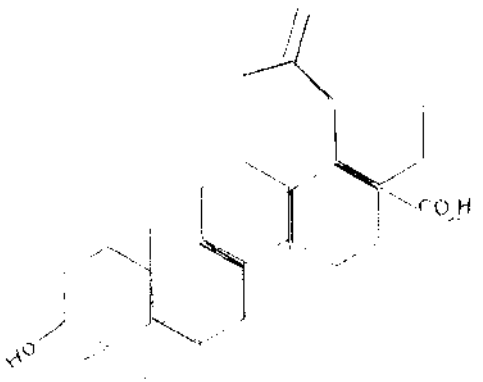
I_H----NMR (500 MHz,$CDCl_3$.CD_3OD):

0.76 (3H,S), 0.82 (3H,S),0.95 (3H,S), 1.20 (3H,S) 1.71(3H,br,S), .80(1H,S.OH), 3.29 (1H,t,j~3 Hz, carbinol proton), 4.6 (1H,S,CH_2=C) and 4.75 (1H,S,CH_2=C).

Results and Discussion

The larvicidal test of the subject compound was done against mosquito *Aedes albopictus* 1st stage larvae according to the procedure described by W.H.O experts committee on insecticides. The result shows 12.50% mortality in 50 ppm and 27% in 125% ppm concentrations.



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