INDOLE ALKALOIDS FROM *KOPSIA TERENGGANENSIS*

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IN THE NAME OF ALLAH,

THE COMPASSIONATE, THE MERCIFUL

Especially dedicated to my husband,

Abang Halim and

my daughters,

Nur Aina Afiqah and Nur Hannah

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ABBREVIATION

^{1}HNMR : Proton Nuclear Magnetic Resonance

^{13}CNMR : Carbon-13 Nuclear Magnetic Resonance

COSY : COrrelated SpectroscopY

HMBC : Heteronuclear Multiple Bond Connectivity

HMQC : Heteronuclear Multi Quantum Coherent

NOESY : Nuclear Overhauser Effect SpectroscopY

Hz : Hertz

δ : chemical shifts are given in ppm

ppm : ratio of two frequencies, Hz/MHz

J : nuclear spin-spin coupling constant through a single bond (one-bond coupling)

kg : kilogram

g : gram

ml : milliliter

m/e : mass to charge ratio

s : single

d : doublet

t : triplet

br : broad

Abstract

A study on the alkaloid content of *Kopsia terengganensis* was done. The bark and leaves were extracted with solvent and isolation of the alkaloids were achieved by chromatography techniques. Alkaloids elucidation were performed via spectral methods, namely NMR, MS, IR and UV. From the bark of this plant, seven indole alkaloids were isolated. They were quebrachamine, eburnamine, isoeburnamine, eburnaminol, larutensine and two new dihydroeburnane alkaloids named terengganensine A and B. The former have an aspidospermane skeleton, while the rest are eburnane alkaloids. Eight indole alkaloids, which were rhazhidigenine (aspidospermane), eburnamine, eburnaminol, larutensine, terengganensine A and B, eburnamonine and eburnamenine were found from the leaves section. The two latter alkaloids also bears an eburnane skeleton.

In addition, cytotoxicity tests were done on the crude extracts (pet. ether, dichloromethane and methanol) of the plant on KB cells. However, no significant toxicity were found of the crude extracts.

Abstrak

Penyelidikan kandungan alkaloid di dalam *Kopsia terengganensis* telah dijalankan. Batang dan daun *K. terengganensis* telah dikeringkan dan diekstrak dengan pelarut-pelarut petroleum eter diikuti dengan diklorometana. Pemencilan alkaloid-alkaloid diperolehi dengan teknik kromatografi. Penentuan alkaloid adalah melalui kaedah spektroskopi iaitu NMR, MS, IR dan UV.

Tujuh jenis alkaloid telah dapat dipencilkan daripada bahagian batang, iaitu quebrachamine, eburnamine, isoeburnamine, eburnaminol, larutensine dan dua alkaloid dihidroeburnan yang baru, terengganensine A dan B. Quebrachamine mempunyai rangka aspidosperman manakala yang selainnya adalah alkaloid eburnan.

Lapan alkaloid indol berjaya dipencil daripada bahagian daun iaitu rhazhidigenine (aspidosperman), eburnamine, eburnaminol, larutensine, terengganensine A dan B, eburnamenine dan eburnamonine.

Ujian sitotoksisiti juga telah dilakukan keatas sel-sel KB dengan menggunakan ekstrak-ekstrak mentah batang dan daun *K. terengganensis* oleh pelarut-pelarut petroleum eter, diklorometana dan metanol. Walaubagaimanapun, tiada sitotoksisiti berkesan yang ditunjukkan oleh ekstrak-ekstrak tersebut.