ALKALOIDS ISOLATED FROM *LITSEA GRANDIS* AND *LITSEA LANCIFOLIA* (LAURACEAE)

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ABSTRACT

The phytochemical study on the leaves of *Litsea grandis* and on the barks of *Litsea lancifolia* involved extraction and separation of alkaloids by using dichloromethane as a solvent. The crude alkaloids obtained were subjected to extensive chromatographic techniques such as thin layer chromatography (TLC) and column chromatography (CC). The structural elucidations of the purified alkaloids were performed with the aid of spectroscopic methods notably 1D-NMR (^{1}H, ^{13}C, DEPT) and 2D-NMR(COSY, HMQC, HMBC, NOESY), UV, IR and LCMS-IT-TOF. The chemical study on the leaves of *Litsea grandis* gave three alkaloids; one aporphine (laurotetanine **69**) and two benzylisoquinoline (reticuline **67** and *N*-methylisococlaurine **68)**. The investigation of the bark of *Litsea lancifolia* afforded eight alkaloids; one benzylisoquinoline; *O*-methylarmepavine **73**; four aporphines; boldine **55**, actinodaphnine **53**, cassythicine **74** and norboldine **75**; one morphinandienone type; pallidine **72**; one new natural product compound; *N*-allyllaurolitsine **70**; and one new bisbenzylisoquinoline; lancifoliaine **71**.Three major alkaloids isolated from *Litsea lancifolia*; lancifoliaine **71**, *N*-allyllaurolitsine **70**, and reticuline **67** were tested for vasorelaxant activity. The results have shown that only *N*-allyllaurolitsine **70**, showed a moderate vasorelaxant activity (85% relaxation at 1×10^{-4}M), meanwhile lancifoliaine **71** and reticuline **67** did not show any significant vasorelaxant activity (30% relaxation at 1×10^{-4}M) on isolated rat aorta.

ABSTRAK

Kajian fitokimia terhadap daun *Litsea grandis* dan terhadap kulit batang *Litsea lancifolia* merangkumi pengekstrakan dan pengasingan alkaloid dengan mengunakan pelarut diklorometana. Ekstrak mentah dipisahkan dengan menggunakan teknik kromatografi (kromatografi lapisan nipis dan kromatografi turus). Formula struktur sebatian tulen yang diperolehi ditentukan melalui kaedah spektroskopi iaitu 1D-NMR (^{1}H, ^{13}C, DEPT) dan 2D-NMR(COSY, HMQC, HMBC, NOESY), UV, IR dan LCMS-IT-TOF. Kajian terhadap bahagian daun *Litsea grandis* telah memberikan tiga sebatian alkaloid; satu aporphina (laurotetanina **69**) dan dua bensilisokuinolina (retikulina **67** dan *N*-metilisokoklaurina **68**). Hasil kajian daripada bahagian batang pokok *Litsea lancifolia* telah menghasilkan lapan sebatian alkaloid; satu bensilisokuinolina; *O*-metilarmepavina **73**; empat aporphina; boldina **55**, aktinodafnina **53**, cassiticina **74** dan norboldina **75**; satu jenis morfinandienona; pallidina **72**; satu sebatian semulajadi baru; *N*-allillaurolitsina **70**; dan satu bisbensilisokuinolina baru; lankifoliaina **71**. Tiga major alkaloid yang telah dipisahkan daripada *Litsea lancifolia*; lankifoliaina **71**, *N*-allillaurolitsina **70** dan retikulina **67** telah di uji untuk aktiviti pengenduran vakso. Sebatian *N*-allillaurolitsina **70** menunjukkan aktiviti pengenduran vakso yang sederhana (85% pengenduran pada 1×10^{-4}M) manakala lankifoliaina **71** dan retikulina **67** tidak menunjukkan aktiviti pengenduran vakso yang bermakna (30% pengenduran pada 1×10^{-4}M) apabila di uji terhadap aorta tikus.

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ABBREVIATIONS

α	Alpha
β	Beta
λ	Maximum wave length
δ	Chemical shift
µM	Micromolar
µl	Microlitre
mM	Milimolar
mg/ml	Miligram per mililitre
g	Gram
kg	Kilogram
U/ml	Unit per mililitre
ml	Mililitre
m	Meter
MHz	Mega Hertz
Hz	Hertz
UV	Ultraviolet
IR	Infrared
ppm	Part per million
eV	Electron Volt
MeOH	Methanol
$CHCl_3$	Chloroform
CH_2Cl_2	Dichloromethane
DMSO	Dimethylsulphoxide
OCH_2O	Methylenedioxy

CH_3	Methyl group
OCH_3	Methoxyl group
OH	Hydroxyl group
NH_3	Ammonia
pH	Power of Hydrogen
HCl	Hydrogen Chloride
TLC	Thin layer chromatography
PTLC	Preparative thin layer chromatography
CC	Column Chromatography
NMR	Nuclear Magnetic Resonance
FT-NMR	Fourier Transform Nuclear Magnetic Resonance
cm^{-1}	Per centimeter
J	Coupling constant
d	Doublet
s	Singlet
dd	Doublet of doublet
t	Triplet
m	Multiplet
BBIQ	Bisbenzylisoquinoline
1D-NMR	One Dimension Nuclear Magnetic Resonance
2D-NMR	Two Dimensional Nuclear Magnetic Resonance
^{1}H	Proton NMR
^{13}C	13-Carbon NMR
COSY	^{1}H-^{1}H Correlation Spectroscopy
DEPT	Distortioness Enhancement by Polarzation Transfer
HMQC	Heteronuclear Multiple Quantum Coherence
HMBC	Heteronuclear Multiple Bond Coherence

NOE	Nuclear Overhauser Enhancement
GC-MS	Gas Chromatography-Mass Spectroscopy
LC-MS	Liquid Chromatography-Mass Spectroscopy
MS	Mass Spectroscopy
EIMS	Electron Impact Mass Spectroscopy
FAB	Fast Atomic Bombardment
ESI	Electrospray Ionization
m/z	Mass per charge
$CDCl_3$	Deuterated chloroform
MeOD	Deuterated methanol