FLAVONOIDS FROM IN VITRO CULTURES OF *STRIGA ASIATICA*

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Lihat sebelah

FLAVONOIDS FROM *IN VITRO* CULTURES OF *STRIGA ASIATICA*.

By

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LIST OF ABBREVIATIONS

λ	Wavelength
μM	Micromolar
A	Absorbance
ACC	1-aminocyclopropane-1-carboxylate
ATR	Attenuated Total Reflectance
BAP	6-Benzylaminopurine
c	concentration of the species under consideration (mol/L)
CD_3COCD_3	Acetone-d_6
$CHCl_3$	Chloroform
CO_2	Carbon dioxide
D_2O	Deuteriumoxide
$DMSOd_6$	Deuterioted Dimethyl Sulfoxide
DPPH	1,1-diphenyl-2-picrylhydrazol
EIMS	Electron Impact Mass Spectrometry
eV	electron-Volt
Fe^{2+}	ion Ferum (II)
g/L	gram per liter
H_2O	Water
IR	Infra Red
KBr	Potassium Bromide

L	path length through the sample
MeOH	Methanol
mg	Milligram
MS	Murashige and Skoog
NaCl	Natrium Chloride
BuOH-EtOAC	Buthanol-ethylacetate
NMR	Nuclear Magnetic Resonance
O_2	Oxygen
^oC	Degree Centigrade
%	Percentage
p.s.i	Pounds per square inch
R_f	Retention factor
STD	Standard (Mixture of Stigmasteroland β-sitosterol)
TLC	Thin Layer Chromatography
UV	Ultraviolet
ε	The coefficient of the material
µg	Microgram

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ABSTRACT

An experiment was conducted to identify the secondary metabolites from *in vitro* cultures of *Striga asiatica*. The cultures were proliferated in solid and liquid media for six months. The dried sample was extracted in methanol for a week. The methanol extract was partitioned by using n-BuOH-EtOAc (1:1) and H_2O (1:1) followed by MeOH : n-Hexane (1:1) to yield a methanol concentrate, MeOHSGA. Then, it was separated by thin layer chromatography (TLC) and column chromatography yielding two hundred and thirteen fractions. The fractions F7, F10 and F20 were subjected to repeated column chromatography. From fraction F7, the compound of SA1 was purified by recrystallization using chloform-methanol. In co-TLC, it showed a spot with similar R_f value with the standard (mixture of Stigmasterol and β-sitosterol). SA1 (0.0673 g) posed a melting point at 140-141°C which was similar to β-sitosterol. By Infrared (IR) analysis and Electron Impact Mass Spectrometry (EIMS), SA1 was further confirmed as β-sitosterol. In this experiment, no pure flavonoids compound was obtained. However, the preliminary chemical test showed that flavonoids existed in the sample. The presence of flavonoids in fractions 10C14, S183, F34, S202 and F38, that showed a positive reaction to ferric chloride and DPPH free radical scavenging assay have been detected. The characters of flavonoids in these fractions were analyzed using UV and IR spectrum.

FLAVONOID DARI *Striga asiatica* YANG DIKUTUR DALAM TIUB

ABSTRAK

Suatu eksperimen telah dijalankan untuk mengenalpasti metabolit sekunder dari kultur *Striga asiatica* dalam tiub. Kultur ini dipropagasi dalam media pepejal dan cecair selama enam bulan. Sampel kering diekstrak dengan menggunakan metanol selama seminggu. Ekstrak metanol dipisahkan oleh n-BuOH-EtOAc (1:1) dan H_2O (1:1), diikuti dengan MeOH: n-Hexane (1:1) untuk menghasilkan ekstrak pekat metanol, MeOHSGA. Kemudian, ia dipisahkan dengan kromatografi turus untuk menghasilkan dua ratus tiga belas fraksi. Fraksi gabung F7, F10 dan F20 dipisahkan sekali lagi menggunakan kromatografi turus. Dari fraksi F7, komponen SA1 ditulenkan melalui teknik penghabluran semula yang menggunakan kloroform-metanol. Dari co-TLC, ia mempamerkan satu titik yang mempunyai nilai R_f yang sama dengan piawai (campuran Stigmasterol dan β-sitosterol). SA1 (0.0673 g) menunjukkan takat lebur pada 140-141°C yang sama dengan dan β-sitosterol. Melalui analisis spekstroskopi infra merah (IR) dan Spektrometer Jisim Hentaman Elektron (EIMS), SA1 dibuktikan sebagai dan β-sitosterol. Dari eksperimen ini, tiada komponen flavonoid tulen yang diperoleh. Bagaimanapun, ujian kimia awal menunjukkan bahawa flavonoid hadir dalam sample. Kehadiran flavonoid dalam fraksi-fraksi 10C14, S183, F34, S202 and F38 yang menunjukkan reaksi positif kepada ferik klorida dan pengujian pengesan radikal bebas DPPH telah dikenalpastikan. Sifat flavonoid dalam fraksi-fraksi ini dianalisa oleh spektra ultra lembayung (UV) dan IR.