Malaysian Journal of Analytical Sciences, Vol 20 No 4 (2016): 751 - 759
DOI: http://dx.doi.org/10.17576/mjas-2016-2004-07

MALAYSIAN JOURNAL OF ANALYTICAL SCIENCES
Published by The Malaysian Analytical Sciences Society
ISSN 1394 - 2506

IDENTIFICATION OF VOLATILE SECONDARY METABOLITES FROM AN ENDOPHYTIC MICROFUNGUS *Aspergillus nomius* KUB105

(Pengenalpastian Metabolit Sekunder Meruap daripada Kulat Mikro Endofitik *Aspergillus nomius* KUB105)

Lateef Adebola Azeez[1,2]*, Sepiah Muid[1], Bolhassan Mohamad Hasnul[1]

[1]*Department of Plant Science and Environmental Ecology, Faculty of Resource Science and Technology, Universiti Malaysia Sarawak, 94300 Kota Samarahan, Sarawak, Malaysia*
[2]*Department of Plant Biology, Faculty of Life Science, University of Ilorin, Nigeria*

**Corresponding author: lateef.aa@unilorin.edu.ng*

Received: 12 August 2015; Accepted: 9 May 2016

Abstract

Microfungi are a highly diverse group of micro-organisms and important components of the ecosystem with great potential for diverse metabolite production. During a survey of microfungi on leaves in a National Park in Sarawak, an uncommon endophytic microfungus *Aspergillus nomius* was encountered. The metabolite production of this microfungus was investigated by growing it in a liquid basal medium for 2 weeks. Gas Chromatography - Mass Spectrometry (GC-MS) and Fourier Transform Infrared (FTIR) profiling of the secondary metabolites produced by this microfungus in the liquid medium revealed the presence of 46 different secondary metabolites. The metabolites include saturated hydrocarbons, alkyl halides, alcohols and an unsaturated hydrocarbon. Majority of the metabolites produced were saturated hydrocarbons. Tetracosane, Icosane and 10-Methylicosane were the most abundant metabolites identified while heptadecane and 2,4-dimethylundecane were the least abundant respectively. This study is the first GC-MS and FTIR report of secondary metabolites from *A. nomius*. The results from this study confirm the ability of microfungi to produce diverse metabolites, including saturated hydrocarbons.

Keywords: *Aspergillus nomius*, endophytic fungi, gas chromatography, hydrocarbons, secondary metabolites

Abstrak

Kulat mikro adalah kumpulan yang pelbagai daripada organisma kecil dan merupakan komponen penting dalam ekosistem dengan potensi besar dalam penghasilan pelbagai metabolit. Kulat mikro endofitik yang jarang dijumpai, iaitu *Aspergillus nomius* telah ditemui semasa kaji selidik kulat mikro atas daun yang dijalankan di Taman Negara, Sarawak. Penghasilan metabolit oleh kulat mikro ini telah dikaji dengan menumbuhkankannya dalam medium cecair asas selama dua minggu. Penghasilan sebanyak 46 metabolit sekunder oleh kulat mikro ini telah disahkan melalui penggunaan Kromatografi Gas – Spektrometri Jisim (GC-MS) dan profil (FTIR). Metabolit yang terhasil termasuklah hidrokarbon tepu, alkil halida, alkohol dan hidrokarbon tidak tepu. Kebanyakan metabolit yang dihasilkan adalah hidrokarbon tepu. Tetrakosana, Ikosana dan 10 Metilikosana adalah metabolit yang paling banyak dikenal pasti manakala heptadekana dan 2,4-dimetilundekana adalah yang paling sedikit. Kajian ini merupakan kajian pertama penghasilan metabolit sekunder dari *A. nomius* melalui penggunaan GC-MS dan FTIR. Hasil kajian ini mengesahkan kebolehan kulat mikro untuk menghasilkan pelbagai metabolit termasuklah hidrokarbon tepu.

Kata kunci: *Aspergillus nomius*, kulat endofitik , kromatografi gas, hidrokarbon, metabolit sekunder