

## Antioxidant Constituents from the Bark of *Aglaiia eximia* (Meliaceae)

Julinton Sianturi<sup>1</sup>, Kindi Farabi<sup>1</sup>, Tri Mayanti<sup>1</sup>, Desi Harneti<sup>1</sup>, Darwati<sup>1</sup>, Unang Supratman<sup>1\*</sup>,  
Khalijah Awang<sup>2</sup>, and Hideo Hayashi<sup>3</sup>

1. Department of Chemistry, Faculty of Mathematics and Natural Sciences, Universitas Padjadjaran, Sumedang 45363, Indonesia
2. Department of Chemistry, Faculty of Science, University of Malaya, Kuala Lumpur 59100, Malaysia
3. Division of Applied Life Sciences, Graduate School of Life and Environmental Sciences, Osaka Prefecture University, Gakuen-cho, Sakai, Osaka 599-8531, Japan

\*E-mail: unang.supratman@unpad.ac.id

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### Abstract

The genus *Aglaiia* is a rich source of different compounds with interesting biological activities. A part of our continuing search for novel biologically active compounds from Indonesia *Aglaiia* plants, the ethyl acetate extract of bark of *Aglaiia eximia* showed significant antioxidant activity. Four antioxidant compounds, kaempferol (1), kaempferol-3-O- $\alpha$ -L-rhamnoside (2), kaempferol-3-O- $\beta$ -D-glucoside (3) and kaempferol-3-O- $\beta$ -D-glucosyl-(1 $\rightarrow$ 4)- $\alpha$ -L-rhamnoside (4) were isolated from the bark of *Aglaiia eximia* (Meliaceae). The chemical structures of compounds 1-4 were identified on the basis of spectroscopic data including UV, IR, NMR and MS along with by comparison with those spectra data previously reported. All compounds showed DPPH radical-scavenging activity with IC<sub>50</sub> values of 1.18, 6.34, 8.17, 10.63  $\mu$ g/mL, respectively.

### Abstrak

**Kandungan Senyawa Antioksidan dari Kulit Batang *Aglaiia eximia* (Meliaceae).** Genus *Aglaiia* adalah sumber yang kaya akan senyawa kimia yang bervariasi dengan aktivitas biologis yang menarik. Bagian dari penelitian kami untuk mencari senyawa aktif baru dari tumbuhan *Aglaiia* Indonesia, ekstrak etil asetat kulit batang *Aglaiia eximia* menunjukkan aktivitas antioksidan yang signifikan. Empat senyawa yang beraktivitas antioksidan, kaempferol (1), kaempferol-3-O- $\alpha$ -L-rhamnosida (2), kaempferol-3-O- $\beta$ -D-glukosida (3) dan kaempferol-3-O- $\beta$ -D-glukosil-(1 $\rightarrow$ 4)- $\alpha$ -L-rhamnosida (4) telah diisolasi dari batang tumbuhan *Aglaiia eximia* (Meliaceae). Struktur kimia senyawa 1-4 telah diidentifikasi berdasarkan interpretasi data spektroskopi meliputi UV, IR, NMR dan massa bersama dengan perbandingan data spektra yang dilaporkan sebelumnya. Semua senyawa menunjukkan aktivitas penghambatan radikal bebas DPPH dengan nilai IC<sub>50</sub> berturut-turut 1,18; 6,34; 8,17 dan 10,63  $\mu$ g/mL.

**Keywords:** *Aglaiia eximia*, DPPH radical-scavenging activity, glycosides, kaempferol, Meliaceae

### Introduction

*Aglaiia eximia* (Meliaceae) is an ornamental tree that has long been recommended in Indonesian medicine for reducing fever, moisturizing the lungs, and for treating contused wound, coughs and skin diseases [1-3]. Previous phytochemical studies of the species *A. eximia* reported some variety of compounds, including triterpenoids with cycloartane, dammarane, and cabraleahydroxylactone types [4-7], as well as stigmastane-types steroid [4,6] and flavonoids [8]. These metabolites have been described previously to exhibit anticancer, cytotoxic, insecticides, anti-inflammatory and antitumor activities [5,9,10].

The different parts of the genus *Aglaiia* have been reported to contain biologically active classes of flavonoid compound [11]. It was suggested, for the same genus, that there are possibilities to generate the derivate compounds based on biosynthesis pathways of plants [12]. The flavonoids are a class of widely distributed phytochemicals, and scavenging of free radicals seems to play a considerable part in the antioxidant activity [13].

To the best of our knowledge, antioxidant activity of compounds or extracts from some members of *Aglaiia* have been described previously [11,12], but no infor-