

**PENGARUH PEMBERIAN FUNGISIDA
TERHADAP PROFIL METABOLIT TANAMAN
Aquilaria malaccensis Lamk.**

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INTISARI

Aquilaria malaccensis merupakan tanaman yang masuk dalam famili Thymelaeaceae dan dikategorikan sebagai salah satu komoditas hasil hutan bukan kayu yang bernilai tinggi di Indonesia. Gaharu yang dihasilkan merupakan hasil interaksi antara tanaman dengan mikrobia endofit. Penelitian ini dilakukan untuk mengetahui efek pemberian fungisida terhadap profil metabolit tanaman *A. malaccensis*. Fungisida yang digunakan adalah Folicur 25 WP dan DuPont Curzate 8/64 WP dimana keduanya memiliki bahan aktif yang berbeda. Tanaman *A. malaccensis* dirawat selama 4 bulan dengan perlakuan fungisida kemudian dilakukan proses ekstraksi. Ekstrak yang diperoleh diuji secara spektrofotometri UV-Vis dan GC-MS. Ekstrak yang diperoleh juga diuji total kandungan fenolik dan flavonoid dengan uji Folin-Ciocalteu dan uji *aluminium* klorida. Hasil analisis multivariat spektrofotometri UV-Vis menunjukkan adanya pemisahan senyawa antara ekstrak dengan perlakuan kontrol dan fungisida. Berdasarkan panjang gelombang penting yang diperoleh, teridentifikasi adanya senyawa *anthraquinone* dan *coumarin* pada ekstrak kontrol. Hasil GC-MS menunjukkan adanya senyawa spesifik yang ditemukan pada ekstrak etanol kontrol yaitu *farnesyl acetate*. Ekstrak etil asetat kontrol menunjukkan adanya senyawa spesifik yaitu *phenethyl isobutyrate*, *methyl dihydrojasmonate*, *2-phenylethanol*, *benzyl salicylate*, dan *2-benzylideneheptanal*. Uji *one-way* ANOVA yang dilakukan menunjukkan perbedaan signifikan antara tanaman kontrol dengan tanaman perlakuan fungisida. Total kandungan fenolik dan flavonoid pada akar *A. malaccensis* mengalami penurunan ketika diberi perlakuan fungisida Folicur 25 WP dibandingkan dengan perlakuan kontrol dan DuPont Curzate 8/64 WP.

Kata kunci: *Aquilaria malaccensis*, endofit jamur, GC-MS, profil metabolit, spektrofotometri UV-Vis

THE EFFECTS OF FUNGICIDE ON *Aquilaria malaccensis* Lamk. PLANTS METABOLITE PROFILE

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ABSTRACT

Aquilaria malaccensis belongs to the Thymelaeaceae family and categorized as one of the non-timber forest product commodities in Indonesia. The agarwood produced is obtained from the interaction between plants and endophytic microbes. This study was conducted to determine the effect of fungicide application on the metabolite profile of *A. malaccensis*. The fungicides used were Folicur 25 WP and DuPont Curzate 8/64 WP, both of which have different active ingredients. *A. malaccensis* plants were treated for 4 months with fungicide treatment and then extracted by maceration. The extract obtained was tested by UV-Vis spectrophotometry and *Gas Chromatography Mass Spectrometry* (GC-MS). The extract was also tested for total phenolic and flavonoid content using Folin-Ciocalteu test and aluminum chloride test. The results for the multivariate analysis of UV-Vis spectrophotometry indicated separation of compounds between extracts with control and fungicide treatments. Based on the important wavelengths, the presence of *anthraquinone* and *coumarin* compounds were identified in the control extract. Meanwhile, the GC-MS results showed that there was a specific compound found in the control ethanol extract of *A. malaccensis* leaves, namely farnesyl acetate. Controlled ethyl acetate extract of *A. malaccensis* leaves showed presence of several specific compounds, such as phenethyl isobutyrate, methyl dihydrojasmonate, 2-phenylethanol, benzyl salicylate, and 2-benzylideneheptanal. The one-way ANOVA test showed significant differences between control plants and fungicide treated plants. The total phenolic and flavonoid content in the roots of *A. malaccensis* decreased when treated with the fungicide Folicur 25 WP compared to the control and DuPont Curzate 8/64 WP treatment.

Keywords: *Aquilaria malaccensis*, endophytic fungi, GC-MS, metabolite profile
UV-Vis spectrophotometry