

IDENTIFIKASI GOLONGAN SENYAWA ANTIOKSIDAN DAN ANTIBAKTERI EKSTRAK DAUN GAHARU (*Aquilaria malaccensis* Lamk.)

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INTISARI

Selain resinnya, daun tumbuhan gaharu (*Aquilaria malaccensis* Lamk.) semakin populer dimanfaatkan masyarakat sebagai obat herbal. Namun, belum banyak penelitian yang membuktikan khasiat daun gaharu tersebut. Tujuan penelitian ini untuk mengetahui aktivitas antioksidan dan antibakteri ekstrak daun gaharu, mengetahui pengaruh perbedaan umur daun terhadap bioaktivitasnya, dan mengidentifikasi golongan senyawa yang berpotensi antioksidan dan antibakteri. Metode ekstraksi yang digunakan adalah sokhletasi bertingkat dengan pelarut kloroform, metanol dan air. Ekstrak yang paling potensial difraksinasi dengan *Vacuum Liquid Chromatography* (VLC). Pengukuran aktivitas antioksidan dilakukan dengan menggunakan metode 2,2-diphenyl-1-picrylhydrazyl (DPPH) dan antibakteri dengan metode difusi kertas cakram. Golongan senyawa bioaktif diidentifikasi dengan Kromatografi Lapis Tipis (KLT) dan pereaksi semprot. Hasil penelitian menunjukkan bahwa ekstrak metanol daun gaharu tua merupakan ekstrak yang paling potensial sebagai antioksidan dengan IC_{50} $19,62 \pm 1,49$ $\mu\text{g/ml}$ dan fraksi potensial antioksidan adalah fraksi gabungan III (FG III) dengan IC_{50} $17,39 \pm 1,43$ $\mu\text{g/ml}$. Ekstrak kloroform daun gaharu tua sebagai ekstrak potensial antibakteri dengan zona hambat sebesar 10,83 mm terhadap *S. aureus* dan 9,92 mm terhadap *E. coli* pada konsentrasi 300 mg/ml. Fraksi yang paling potensial sebagai antibakteri adalah fraksi kloroform yang menghasilkan diameter zona hambat sebesar 9,58 mm terhadap *S. aureus* dan 9,08 mm terhadap *E. coli* pada konsentrasi 100 mg/ml. Golongan senyawa pada fraksi potensial antioksidan yaitu fenolik dan flavonoid, sedangkan pada fraksi potensial antibakteri adalah alkaloid dan terpenoid. Daun gaharu berumur tua lebih potensial sebagai antioksidan dan antibakteri dibandingkan daun gaharu muda.

Kata kunci : *Aquilaria malaccensis*, antioksidan, antibakteri, metabolit sekunder

IDENTIFICATION GROUP OF ANTIOXIDANT AND ANTIBACTERIAL COMPOUNDS OF AGARWOOD LEAVES EXTRACT

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ABSTRACT

The leaves of agarwood (*Aquilaria malaccensis* Lamk.) plant become more popular used as herbal medicine. However, the scientific studies to prove the efficacy of the agarwood leaves still a few. The objectives of this study were to determine the antioxidant and antibacterial activities of the leaves extract of agarwood, to study the effect of different ages of agarwood leaves on their bioactivities, and to identify group of compounds that potential as antioxidant and antibacterial. The extraction method used in this research was soxhletation using three solvents, chloroform, methanol and water. The most potential extract was fractionated by Vacuum Liquid Chromatography (VLC). Antioxidant activity analysis was done using 2,2-diphenyl-1-picrylhydrazyl (DPPH) and antibacterial activity evaluation was performed using the paper disc diffusion method. While the identification groups of bioactive compounds were done using Thin Layer Chromatography (TLC) and followed by spraying correspond reagents. The results showed that the methanol extract old leaves was the most potential extract with IC_{50} $19,62 \pm 1,49$ $\mu\text{g/ml}$ and the most potential fraction as the antioxidant was the combined fractions III (FG III) with IC_{50} $17,39 \pm 1,43$ $\mu\text{g/ml}$. The most potential as antibacterial on *S. aureus* and *E. coli* was chloroform extract of old leaves with 10,83 mm and 9,92 mm zone of inhibition respectively at concentration of 300 mg/ml. While the most potential fraction as antibacterial on *S. aureus* and *E. coli* was chloroform fraction that had the inhibition zone of 9.58 mm and 9.08 mm respectively at concentration of 100 mg/ml. Group of compounds in a potential antioxidant fraction were phenolic and flavonoid compounds, while potential antibacterial fraction were alkaloid and terpenoid. Old agarwood leaves showed higher potency as an antioxidant and antibacterial than young agarwood leaves.

Keywords: *Aquilaria malaccensis*, antioxidant, antibacterial, secondary metabolites