

# **ANALISIS KOMPONEN EKSTRAKTIF DAN BIOAKTIVITAS TERHADAP TUJUH SPESIES KAYU DAUN LEBAR TUMBUH DI YAMAGATA, JEPANG**

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## **Intisari**

Ekstraktif kayu merupakan salah satu agen pencegah maupun pelindung kayu dari organisme perusak kayu. Kayu yang digunakan adalah bagian teras dari tujuh spesies kayu daun lebar di Jepang (*Castanea crenata*, *Juglans mandshurica* var. *sachalinensis*, *Magnolia obovata*, *Fagus crenata*, *Quercus* sp., *Robinia pseudoacacia*, dan *Prunus jamasakura*). Tujuan dari penelitian ini adalah mengetahui kadar ekstraktif, total fenolat dan flavanol dengan ekstraksi maserasi bertingkat (heksana, etil asetat, dan metanol) terhadap anti jamur (*Fomitopsis palustri* & *Trametes versicolor*) dan anti rayap (*Reticulitermes speratus*). Aktivitas antijamur diuji melalui penghambatan pertumbuhan miselia pengaplikasian ekstrak pada permukaan media PDA (*Potato Dextrose Agar*). Aktivitas antirayap diuji melalui kehilangan berat dan mortalitas rayap menggunakan metode tanpa pilihan. Hasil menunjukkan bahwa kadar ekstraktif paling tinggi didapatkan pada ekstrak metanol kayu teras yamazakura sebesar 15,13%. Nilai kadar total fenolat tertinggi ditunjukkan pada ekstrak metanol kayu teras onigurumi sebesar 514,05 mgGAE/g ekstrak kering. Nilai kadar total flavanol tertinggi ditunjukkan pada ekstrak etil asetat kayu teras onigurumi sebesar 359,56 mgCE/g ekstrak kering. Ekstrak etil asetat dan metanol kayu teras yamazakura masing-masing memiliki aktivitas tertinggi terhadap *F. palustris* (13,73%) dan *T. versicolor* (34,02%). Sementara itu, kayu teras hou yang diekstrak pada metanol menunjukkan aktivitas tertinggi terhadap *R. speratus* dengan masing-masing nilai kehilangan berat dan mortalitasnya sebesar 1,65% dan 36,67%.

**Kata Kunci:** Kayu Teras, Ekstraktif, Kuantitatif, GC-MS, Aktivitas Biologis

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## **ANALYSIS OF WOOD EXTRACTIVE COMPONENTS AND BIOLOGICAL ACTIVITIES OF SEVEN HEARTWOODS FROM BROAD-LEAF WOOD GROWTH IN YAMAGATA, JAPAN**

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### **Abstract**

Wood extractives are known to act as protective agents against wood-deteriorating organisms. This study utilized heartwood samples from seven heartwood of hardwood tree species in Japan (*Castanea crenata*, *Juglans mandshurica* var. *sachalinensis*, *Magnolia obovata*, *Fagus crenata*, *Quercus* sp., *Robinia pseudoacacia*, and *Prunus jamasakura*). The aim of study was to determine the extractive, total phenolic and flavanol contents with successive extraction (*n*-hexane, ethyl acetate, and methanol), also to evaluate their antifungal activity against *Fomitopsis palustris* and *Trametes versicolor*, as well as their anti-termites activity on *Reticulitermes speratus*. Antifungal activity was performed by applied the extract to the surface of PDA (Potato Dextrose Agar). Antitermites activity was evaluated using no-choice test method. The highest extractive content was found in the methanol extract of yamazakura heartwood (15.13%). The highest total phenolic and flavanol content was observed in the methanol and ethyl acetate extract of onigurumi heartwood, the values were 514.05 mgGAE/g dried extract and 359.56 mgCE/g dried extract, respectively. Ethyl acetate and methanol extract of yamazakura heartwood showed the highest activity against *F. palustris* and *T. versicolor* were 13.73% and 34.02%, respectively. Futhermore, the methanol extract of hou heartwood exhibited the highest antitermites activity, with mass loss and termite mortality values were 1.65% and 36.67%, respectively.

**Keywords:** Heartwood, Extractive, Quantitative, GC-MS, Biological Activity

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