

**PENGHAMBATAN KOROSI BAJA MENGGUNAKAN EKSTRAK DAUN
GAHARU (*Gyrinops versteegii*) DALAM MEDIUM HCI**

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INTISARI

PENGHAMBATAN KOROSI BAJA MENGGUNAKAN EKSTRAK DAUN GAHARU (*Gyrinops versteegii*) DALAM MEDIUM HCl

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Penelitian mengenai pengaruh ekstrak daun gaharu (*Gyrinops versteegii*) sebagai inhibitor terhadap korosi pada baja ringan, dipelajari dengan metode kehilangan berat, polarisasi potensiodynamik, uji fitokimia, *fourier transform infrared* (FTIR) dan mikroskop optis. Hasil metode kehilangan berat mengindikasikan bahwa ekstrak daun gaharu bekerja secara spontan dan terjadi adsorpsi fisika pada permukaan baja. Efisiensi inhibisi ekstrak daun gaharu pada permukaan baja terbesar pada suhu perendaman 50°C konsentrasi 10 g/L sebesar 90,78%. Isoterm adsorpsi ekstrak daun gaharu pada permukaan baja mengikuti isoterm adsorpsi Langmuir. Hasil metode polarisasi potensiodynamik menunjukkan bahwa ekstrak daun gaharu merupakan inhibitor jenis anodik. Dari hasil pengukuran metode polarisasi potensiodynamik dan kehilangan berat ternyata semakin besar konsentrasi ekstrak daun gaharu yang ditambahkan laju korosi baja menurun, dan efisiensi inhibisi semakin meningkat. Berdasarkan hasil analisis FTIR terjadi pergeseran angka gelombang antara ekstrak pekat daun gaharu dan produk korosi. Hasil analisis fitokimia menunjukkan bahwa ekstrak daun gaharu mengandung senyawa fenolik, flavonoid, steroid, alkaloid dan saponin. Karakterisasi mikroskop optis memperlihatkan permukaan baja yang lebih halus dengan penambahan ekstrak daun gaharu dibandingkan dengan tanpa penambahan ekstrak daun gaharu.

Kata kunci : *Gyrinops versteegii*, inhibitor daun gaharu, FTIR, kehilangan berat, potensiodynamik



ABSTRACT

STEEL CORROSION PREVENTION USING GAHARU LEAVES EXTRACT (*Gyrinops versteegii*) IN HCl MEDIUM

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Research on the effect of gaharu leaf extract (*Gyrinops versteegii*) as an inhibitor against corrosion of mild steel was studied using the method of weight loss, potentiodynamic polarization, phytochemical tests, Fourier transform infrared (FTIR) and optical microscopy. The results of the weight loss method indicated that the gaharu leaf extract worked spontaneously and there was physical adsorption on the steel surface. The inhibition efficiency of gaharu leaf extract on the steel surface was the largest at an immersion temperature of 50°C with a concentration of 10 g/L is 90.78%. The adsorption isotherm of gaharu leaf extract on the steel surface followed the Langmuir adsorption isotherm. The results of the potentiodynamic polarization method showed that gaharu leaf extract was an anodic inhibitor. From the measurement results with the potentiodynamic polarization method and weight loss, it turns out that the greater the concentration of gaharu leaf extract added by the corrosion rate of steel decreases, and the inhibition efficiency increases. Based on the results of FTIR analysis, there was a shift in the wave numbers between concentrated of gaharu leaf extracts and corrosion products. The results of the phytochemical analysis showed that the gaharu leaf extract contained phenolic, flavonoids, steroids, alkaloids and saponins. Optical microscopic characterization showed a smoother steel surface with the addition of gaharu leaf extract compared to without the addition of gaharu leaf extract.

Keywords: *Gyrinops versteegii*, gaharu leaf extract inhibitor, FTIR, weight loss, potentiodynamics

