

**EKSTRAK DAUN PAKU SARANG BURUNG (*Asplenium nidus*)
SEBAGAI INHIBITOR KOROSI BAJA LUNAK
DALAM MEDIUM HCl 1 M**

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INTISARI

Ekstrak Daun Paku Sarang Burung (*Asplenium nidus*) sebagai Inhibitor Korosi Baja Lunak Dalam Medium HCl 1 M

Oleh:

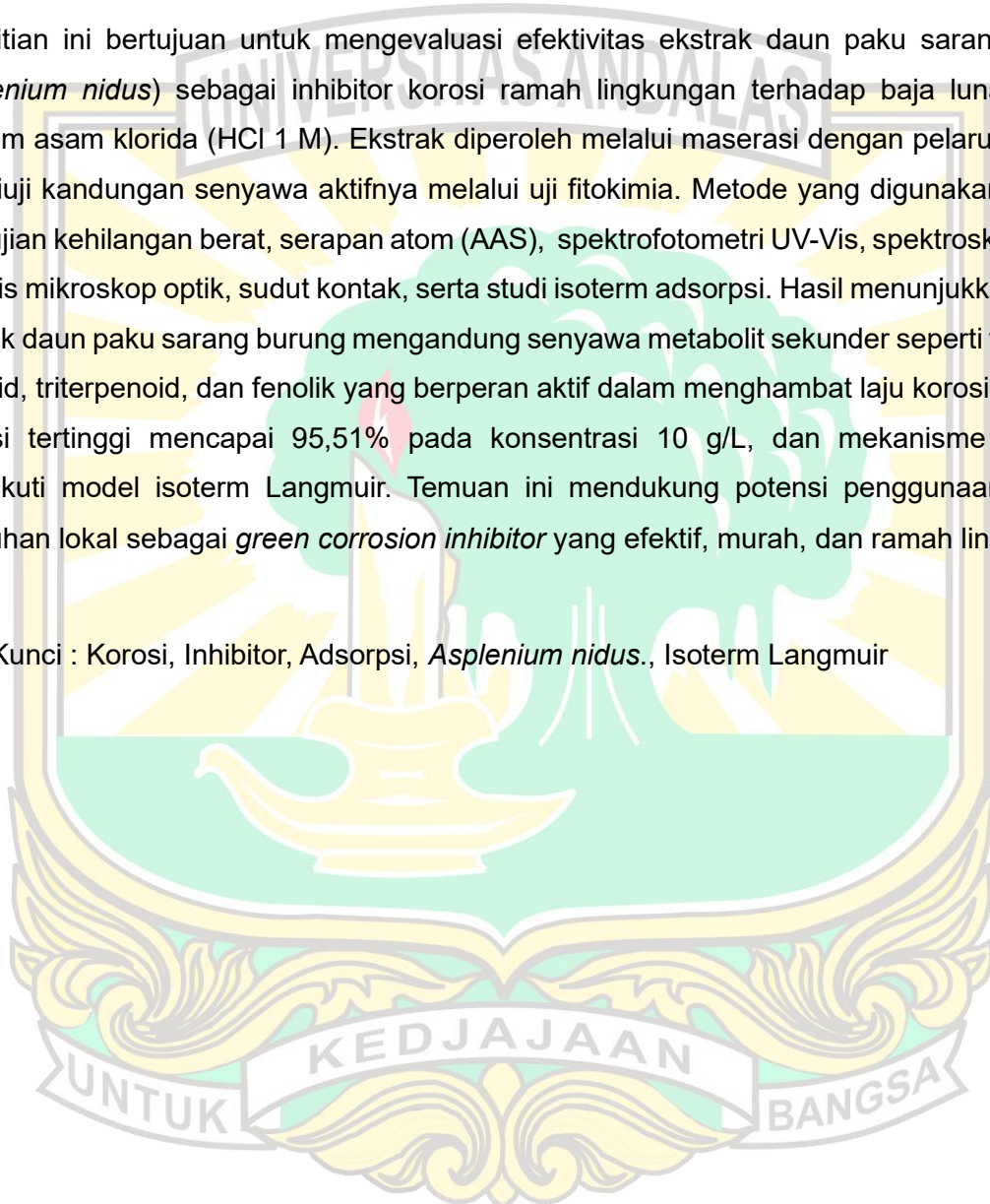
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Penelitian ini bertujuan untuk mengevaluasi efektivitas ekstrak daun paku sarang burung (*Asplenium nidus*) sebagai inhibitor korosi ramah lingkungan terhadap baja lunak dalam medium asam klorida (HCl 1 M). Ekstrak diperoleh melalui maserasi dengan pelarut metanol dan diuji kandungan senyawa aktifnya melalui uji fitokimia. Metode yang digunakan meliputi pengujian kehilangan berat, serapan atom (AAS), spektrofotometri UV-Vis, spektroskopi FTIR, analisis mikroskop optik, sudut kontak, serta studi isoterm adsorpsi. Hasil menunjukkan bahwa ekstrak daun paku sarang burung mengandung senyawa metabolit sekunder seperti flavonoid, alkaloid, triterpenoid, dan fenolik yang berperan aktif dalam menghambat laju korosi. Efisiensi inhibisi tertinggi mencapai 95,51% pada konsentrasi 10 g/L, dan mekanisme adsorpsi mengikuti model isoterm Langmuir. Temuan ini mendukung potensi penggunaan ekstrak tumbuhan lokal sebagai *green corrosion inhibitor* yang efektif, murah, dan ramah lingkungan.

Kata Kunci : Korosi, Inhibitor, Adsorpsi, *Asplenium nidus*., Isoterm Langmuir



ABSTRACT

Bird's Nest Fern (*Asplenium nidus*) Leaf Extract as a Mild Steel Corrosion Inhibitor in 1 M HCl Medium

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This study aims to evaluate the effectiveness of bird's nest fern (*Asplenium nidus*) leaf extract as an environmentally friendly corrosion inhibitor against mild steel in hydrochloric acid (HCl 1 M) medium. The extract was obtained through maceration with methanol solvent and tested for its active compound content through phytochemical tests. The methods used included weight loss testing, atomic absorption (AAS), UV-Vis spectrophotometry, FTIR spectroscopy, optical microscopy analysis, contact angle analysis, and adsorption isotherm studies. The results showed that bird's nest fern leaf extract contains secondary metabolite compounds such as flavonoids, alkaloids, triterpenoids, and phenolics which play an active role in inhibiting the corrosion rate. The highest inhibition efficiency reached 95.51% at a concentration of 10 g/L, and the adsorption mechanism followed the Langmuir isotherm model. These findings support the potential use of local plant extracts as effective, inexpensive, and environmentally friendly green corrosion inhibitors.

Keywords: Corrosion, Inhibitor, Adsorption, *Asplenium nidus*., Langmuir Isotherm

