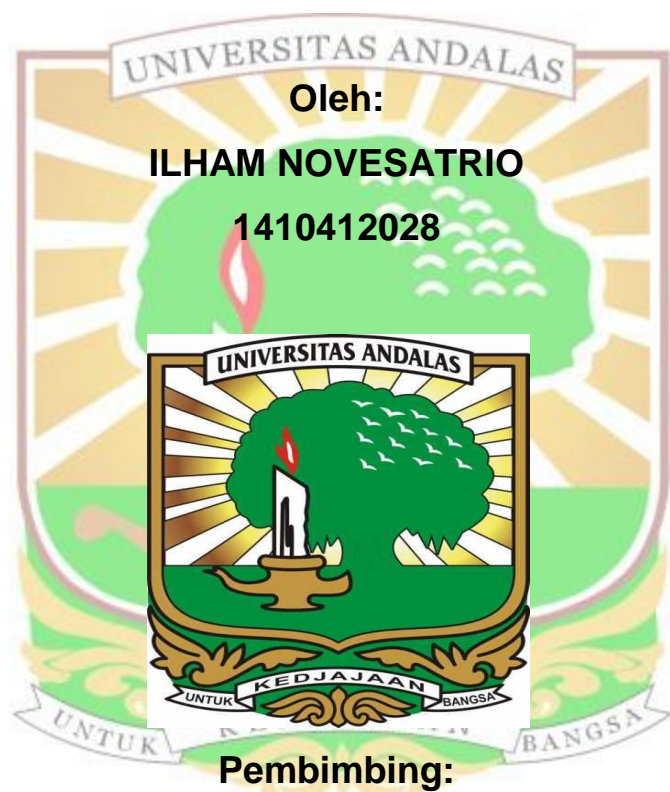


**PEMANFAATAN EKSTRAK DAUN BENGGUANG (*Pachyrhizus erosus*
L. Urban) SEBAGAI INHIBITOR RAMAH LINGKUNGAN KOROSI
BAJA DALAM MEDIUM ASAM**

SKRIPSI SARJANA KIMIA



Oleh:

ILHAM NOVESATRIO

1410412028

Pembimbing:

Pembimbing I : Yeni Stiadi, MS

Pembimbing II : Prof. Dr. Emriadi, M.Si

**JURUSAN KIMIA
FAKULTAS MATEMATIKA DAN ILMU PENGETAHUAN ALAM
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INTISARI

PEMANFAATAN EKSTRAK DAUN BENGGUANG (*Pachyrhizus erosus* L. Urban) SEBAGAI INHIBITOR RAMAH LINGKUNGAN KOROSI BAJA DALAM MEDIUM

ASAM

Oleh :

Ilham Novesatrio (1410412028)
Yeni Stiadi, MS dan Prof. Dr. Emriadi

Telah dilakukan penelitian mengenai ekstrak daun bengkuang (*Pachyrhizus erosus* L. Urban) sebagai inhibitor ramah lingkungan pada korosi baja. Inhibisi korosi ekstrak daun bengkuang dipelajari dengan menggunakan metode kehilangan berat, analisis *Fourier Transform Infrared* (FTIR), polarisasi potensiostatik dan karakterisasi menggunakan *Scanning Electron Microscopy* (SEM). Berdasarkan metode kehilangan berat didapatkan bahwa laju korosi menurun dengan meningkatnya konsentrasi ekstrak daun bengkuang dan laju korosi meningkat dengan meningkatnya suhu. Efisiensi inhibisi terbesar terjadi pada konsentrasi 10 g/L saat suhu 30°C dengan nilai efisiensi inhibisinya sebesar 95.64%. Pergeseran spektrum gugus fungsi pada analisis FTIR dari ekstrak daun bengkuang dan produk korosi membuktikan terjadinya interaksi antara ekstrak daun bengkuang dengan permukaan baja. Pengukuran polarisasi potensiostatik menunjukkan bahwa inhibitor ekstrak daun bengkuang merupakan inhibitor campuran. Isoterm adsorpsi mengikuti isoterm adsorpsi Langmuir. Hasil analisis SEM menunjukkan perbedaan morfologi pada permukaan baja yang direndam dengan ada dan tanpa adanya penambahan ekstrak daun bengkuang.

Kata kunci: *Pachyrhizus erosus* L. Urban, Inhibitor korosi, polarisasi potensiostatik, FTIR, SEM

ABSTRACT

UTILIZATION OF *BENGGUANG* LEAF EXTRACT (*PACHYRHIZUS EROSUS* L. URBAN) AS AN ENVIRONMENTALLY FRIENDLY INHIBITOR OF STEEL CORROSION IN ACID MEDIUM

By:

Ilham Novesatrio (1410412028)

Yeni Stiadi, MS and Prof. Dr. Emriadi

Research has been carried out on the leaf extract of *Bengkuang* (*Pachyrhizus erosus* L. Urban) as an environmentally friendly inhibitor of steel corrosion. The corrosion inhibition of *bengkuang* leaf extract was studied using the weight loss method, Fourier Transform Infrared (FTIR) analysis, potentiodynamic polarization and characterization using Scanning Electron Microscopy (SEM). Based on the weight loss method, it was found that the corrosion rate decreased by increasing concentration of *bengkuang* leaf extract and the corrosion rate increased by increasing temperature. The greatest inhibition efficiency occurred at a concentration of 10 g / L at 30°C with an inhibition efficiency value of 95.64%. The friction of the functional group spectrum in the FTIR analysis of the *bengkuang* leaf extract and the corrosion product proved the interaction between the *bengkuang* leaf extract and the steel surface. Potentiodynamic polarization measurements showed that the *bengkuang* leaf extract inhibitor was a mixed inhibitor. The adsorption isotherm follows the Langmuir adsorption isotherm. SEM analysis results showed morphological differences in the steel surface soaked with and without the addition of *bengkuang* leaf extract.

Keywords: *Pachyrhizus erosus* L. Urban, Corrosion inhibitor, potentiodynamic polarization, FTIR, SEM