

**PEMANFAATAN EKSTRAK LIGNIN DARI JERAMI (*Oryza sativa*) SEBAGAI
INHIBITOR KOROSI BAJA DALAM MEDIUM ASAM KLOORIDA**

SKRIPSI SARJANA KIMIA

Oleh :

DZAKIYYAH NAFIES ZIRMA

BP: 1710412009



Pembimbing 1 : Prof.Dr. Emriadi

Pembimbing 2 : Dr. Yeni Stiadi

PROGRAM STUDI SARJANA

JURUSAN KIMIA

FAKULTAS MATEMATIKA DAN ILMU PENGETAHUAN ALAM

UNIVERSITAS ANDALAS

PADANG

2021

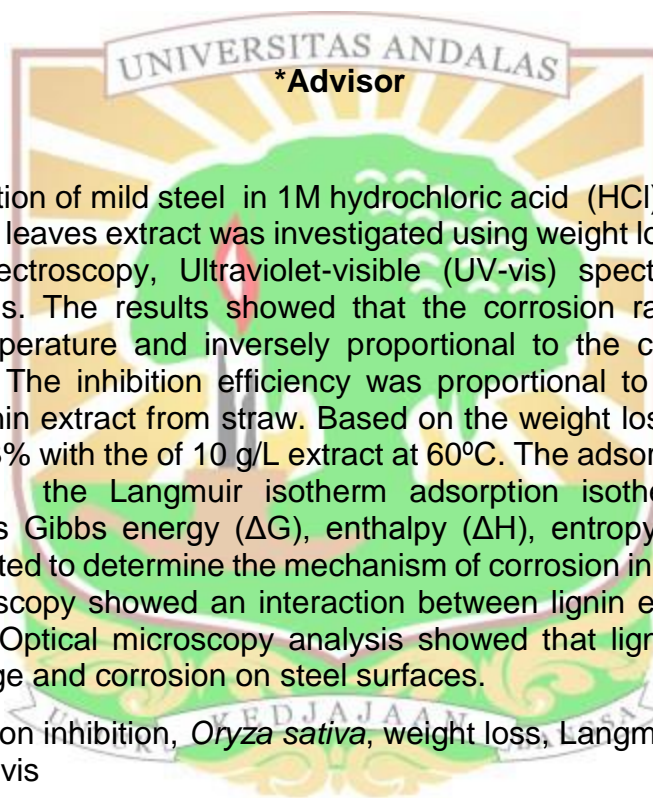
ABSTRACT

UTILIZATION OF LIGNIN EXTRACT FROM STRAW (*Oryza sativa*) AS CORROSION INHIBITOR OF MILD STEEL IN HYDROCHLORIC ACID MEDIA

By:

Dzakiyyah Nafies Zirna (BP: 1710412009)

Prof.Dr.Emriadi*, Dr. Yeni Stiadi*



The corrosion inhibition of mild steel in 1M hydrochloric acid (HCl) by lignin extract from straw (*Oryza sativa*) leaves extract was investigated using weight loss, Fourier Transform Infrared (FTIR) spectroscopy, Ultraviolet-visible (UV-vis) spectroscopy, and optical microscopy methods. The results showed that the corrosion rate of mild steel was proportional to temperature and inversely proportional to the concentration of lignin extract from straw. The inhibition efficiency was proportional to the temperature and concentration of lignin extract from straw. Based on the weight loss method the highest efficiency was 90,93% with the of 10 g/L extract at 60°C. The adsorption of lignin extracts from straw follows the Langmuir isotherm adsorption isotherm. Thermodynamic parameters such as Gibbs energy (ΔG), enthalpy (ΔH), entropy (ΔS), and activation energy were calculated to determine the mechanism of corrosion inhibition. FTIR analysis and UV-vis spectroscopy showed an interaction between lignin extract from straw and mild steel surface. Optical microscopy analysis showed that lignin extract from straw could reduce damage and corrosion on steel surfaces.

Keywords: Corrosion inhibition, *Oryza sativa*, weight loss, Langmuir adsorption isotherm, FTIR, UV-vis