

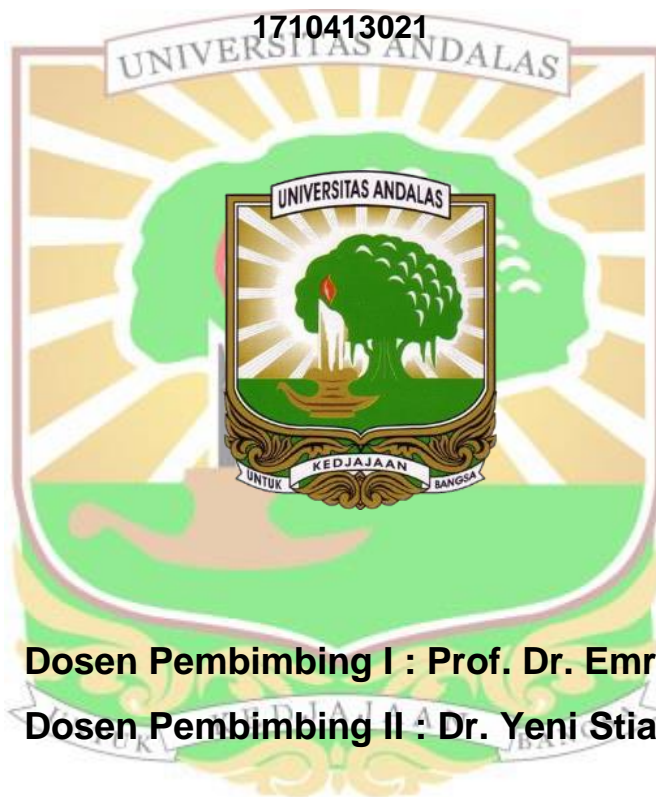
**PEMANFAATAN EKSTRAK LIGNIN DARI KULIT SINGKONG (*Manihot  
utilissima*) SEBAGAI INHIBITOR KOROSI BAJA LUNAK RAMAH LINGKUNGAN  
DALAM MEDIUM ASAM**

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## ABSTRACT

### Utilization of Cassava Peel Extract (*Manihot utilissima*) as an Environmentally Friendly Mild Steel Corrosion Inhibitor in Acidic Medium

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The effectiveness of corrosion inhibition of lignin extract from cassava peel (*Manihot utilissima*) on mild steel in 1 M HCl solution has been investigated by means of weight loss, Fourier Transform Infrared Spectroscopy (FTIR) analysis, UV-vis spectrophotometry analysis, and optical microscopy. Based on the weight loss method, the research data showed that the corrosion rate was proportional to temperature and inversely proportional to the addition of extract concentration. The inhibition efficiency increased with increasing temperature and extract concentration. The highest inhibition efficiency value was obtained at 91.43% with an extract concentration of 10 g/L at a temperature of 60°C. The adsorption of lignin extract from cassava peel on the steel surface followed the Langmuir adsorption isotherm. UV-vis spectrophotometric analysis and FTIR indicated the interaction between lignin extract from cassava peel and steel surface. Optical microscopy analysis showed that the addition of lignin extract from cassava peel could control the corrosion rate and reduce the formation of rust on the steel surface.

**Keywords:** lignin, cassava peel, mild steel, inhibition, corrosion rate.

