Solanum lasiocarpum L. Extract as Green Corrosion Inhibitor for A3 Steel in 1 M HCl Solution

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An extract of *Solanum lasiocarpum* L. (SL) was characterized and tested for its potential anticorrosion effect on A3 steel in a 1 M HCl solution using weight loss analysis, potentiodynamic polarization measurements, electrochemical impedance spectroscopy, Fourier transform infrared spectroscopy and scanning electron microscopy (SEM). The electrochemical and weight loss results revealed that the SL extract was an efficient corrosion inhibitor with an inhibition efficiency of up to 93.31% at a concentration of 1 g/L, which was further confirmed by SEM observations. The adsorption process mainly comprised physisorption and chemisorption (comprehensive adsorption), and obeyed the Langmuir model. The SL extract is a mixed inhibitor that predominantly suppresses the cathodic reaction.

Keywords: *Solanum lasiocarpum* L., Plant-based corrosion inhibitor, Adsorption, Electrochemical

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