

Corrosion Inhibition of Mild Steel in 0.5N H₂SO₄ Solution by *Tribulus terrestris* (Fruit) Extract

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Abstract

The corrosion inhibition efficiency of alcoholic extract of fruits of plant *Tribulus terrestris* for mild steel in 0.5N H₂SO₄ solution has been studied in relation to concentration of inhibitor by Mass Loss, Potentiodynamic Polarisation and Electrochemical Impedance Spectroscopy methods. The results indicate that *Tribulus terrestris* fruit extract used in liquid H₂SO₄ effectively reduces the corrosion rate of mild steel and act as a good corrosion inhibitor. It is also observed that inhibition efficiency increases with inhibitor concentration but it decreases with increase in temperature. The thermodynamic parameters reveal that the inhibition of corrosion is due to adsorption of the inhibitor on the metal surface. The negative free energy values show spontaneity of the adsorption process in accordance with Langmuir adsorption isotherm.

Keywords: Corrosion Inhibitors, Electrochemical Method, Langmuir Adsorption Isotherm, Mass Loss Method, *Tribulus terrestris*