Adsorption and Inhibition Behavior of Avicennia Marina for Zn Metal in Hydrochloric Acid Solution

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The protection of the dissolution of Zn in 1/2 M HCl by aqueous Avicennia marina extract (AME) has been examined utilized hydrogen liberation (HL), weight loss (WL), Tafel polarization (TP), electrochemical frequency modulation (EFM) and AC impedance (EIS) tests. The outcome data of studied extract is excellent except for corrosion hindrance and its mitigation efficiencies (IE%) increases with the rising of extract concentration and temperature rise. Likewise, the AME adsorbed on Zn surface obey Timken kind isotherm. Potentiodynamic polarization data revealed that the AME acts as mixed kind inhibitor. The results were correlated with scanning electron microscopic (SEM) studies. The efficiency gotten from the different tests was in best agreement.

Keywords: Corrosion inhibition, Avicennia marina extract, HCl, Zn, Hydrogen liberation, Weight loss, EIS, EFM

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