



Leaves Extract of Lawsonia Inermis (Heena) As a Corrosion Inhibitor for Copper in Trichloroacetic Acid

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ABSTRACT

Lawsonia inermis (LI) leaves extract by mass loss measurement and electrochemical techniques. The inhibitor efficiency of LI extract was found to very with concentration was kept uniform for 24 h and temperatures was kept uniform for 2 h. Experimental results revealed that inhibition efficiency (I.E %) increased with increasing inhibitor concentration. As temperatures increased, percentage of inhibition decreases. The result also showed that, adsorption of inhibitor molecules on the surface of Copper followed Temkin, Freundlich and Langmuir adsorption isotherm model. The value of free energy of adsorption (ΔG_{ads}°), heat of adsorption (Q_{ads}), energy of activation (E_a), enthalpy of adsorption (ΔH_{ads}°) and entropy of adsorption (ΔS_{ads}°) were calculated Potentiodynamic study and Electrochemical Impedance Spectroscopy (EIS) implies that film developed on Copper using the both of TCA exhibits good corrosion resistance. The LI leaves extract is environmental friendly, biodegradable, nontoxic, cheap and easily available material which is used as corrosion inhibitor for Copper metal in TCA.



Keywords: Lawsonia Inermis (LI) leaves, Copper, Trichloroacetic acid (TCA).