Calotropis Procera Extract as Corrosion Inhibitor for Copper in Nitric Acidic Environment

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The corrosion of Cu in 2.0 M HNO₃ using Calotropis Procera (CP) extract as save inhibitor has been conducted utilizing, AC impedance spectroscopy (EIS), Tafel polarization (PP), electrochemical frequency modulation (EFM) and weight loss (WL) tests. Polarization studies proved that, this extract plays as a mixed - kind inhibitor. Inhibition efficiency (IE) of this extract has been found to vary with concentration of CP extract and temperature. The thermodynamic parameters of Cu corrosion in 2.0 M HNO₃ were computed and discussed. The surface analysis of Cu was showed using several techniques. These analyses revealed that CP extract was adsorbed on the Cu surface, preventing the Cu surface from corrosion. Fourier transform infrared (FTIR) results showed that the mechanism of protection was by absorption process, through the functional group's present in the extract. All techniques gave parallel results.

Keywords: Calotropis Procera extract, Copper, Corrosion inhibition, HCl, Temkin isotherm

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