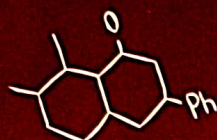


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BOOK OF ABSTRACTS

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The use of ethanolic extract of *Chromolaena odorata* flower as a natural and promising corrosion inhibitor for mild steel protection in acidic media

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Abstract: This work focuses on examining the corrosion inhibition properties of the ethanolic extract obtained from *Chromolaena odorata* flowers, known for their eco-friendly nature and rich phytochemical composition [1, 2]. Potentiodynamic polarization (PDP) and Electrochemical Impedance Spectroscopy (EIS) studies were in good agreement with the conventional weight loss method in concluding that the inhibition efficiency of *Chromolaena odorata* flower extract (COFE) inhibitor increase with increase in inhibitor concentration and decrease with increase in temperature from 303K to 323K. The optimum inhibitor concentration is shown by 3% (v/v) COFE in 0.5M HCl at room temperature. GC-MS studies of COFE showed the presence of DCarvone, Cyclooctasulphur, Elaol and Linoleic acid as major components. DFT calculations justify the corrosion inhibitive performance of flower extract on mild steel. Surface morphologies of mild steel in the presence and absence of inhibitor examined by FESEM and AFM techniques revealed that in the presence of the COFE, less damage occurs on the mild steel surface. The isothermal studies showed that the adsorption of COFE on the surface of steel was best fitted by the Langmuir isotherm.

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