عنوان مقاله:

Cinnamomum zeylanicum Extract as Green Corrosion Inhibitor for Carbon Steel in Hydrochloric Acid Solutions

محل انتشار:

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خلاصه مقاله:

The extract of cinnamomum have been evaluated as green inhibitor for the corrosion of Carbon steel in 1M HCl solution was investigated using weight loss, potentiodynamic polarization, ac electrochemical impedance spectroscopy (EIS) , electrochemical frequency modulation (FEM) and energy dispersion spectroscopy (EDS) and scanning electron microscopy (SEM) methods of monitoring corrosion . The inhibitive property of the extract is attributed to the presence of cinnamic aldehyde as major constituent in the extract. measurements showed that this extract act as mixed-type inhibitor. The inhibition efficiency was found to increase with inhibitor concentration. Results obtained by various techniques are close to each other and maximum efficiency of 81.1 % is acknowledged at the inhibitor concentration of 600 ppm. Langmuir isotherm model is found most suitable to explain adsorption behavior of inhibitor for C-steel surface. Molecular adsorption of inhibitor over C- steel surface is found responsible for corrosion inhibition of C-steel in acid.

کلمات کلیدی:

reen inhibitorه ,corrosion, Cinnamomum, C-steel, HCl