

عنوان مقاله:

Corrosion inhibition of aluminium in HCl Solution by ethanol extract of Ruellia Tuberosa L Service Unavailable

محل انتشار:

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خلاصه مقاله:

The ethanol extract of Ruellia tuberosa L leaves (ERT) was used for Corrosion inhibition of aluminum in 0.5 M HCl using the weight loss method at various temperatures and immersion time. Further, the potentiodynamic polarization studies, electrochemical impedance spectroscopy, energy-dispersive X-ray spectroscopy, Fourier-transform infrared spectroscopic, and scanning electron microscope analyses were carried out. The experimental result implies that the addition of inhibitor increases corrosion inhibition efficiency at various temperatures and it diminishes with increasing acid concentration. The ERT molecule's adsorption on active sites of the aluminum surface was endothermic and is in physicochemical nature and it followed Langmuir adsorption isotherm. The obtained impedance results displayed a high convergence and the potentiodynamic polarization study exhibits mixed-type inhibition. The FT-IR, EDX spectroscopy, and scanning electron microscope studies have made it firmer than the inhibitor species are adsorbed on the Al surface. The ethanol extract of Ruellia tuberosa L leaves (ERT) was used for Corrosion inhibition of aluminum in 0.5 M HCl using the weight loss method at various temperatures and immersion time. Further, the potentiodynamic polarization studies, electrochemical impedance spectroscopy, energy-dispersive X-ray spectroscopy, Fourier-transform infrared spectroscopic, and scanning electron microscope analyses were carried out. The experimental result implies that the addition of inhibitor increases corrosion inhibition efficiency at various temperatures and it diminishes with increasing acid concentration. The ERT molecule's adsorption on active sites of the aluminum surface was endothermic and is in physicochemical nature and it followed Langmuir adsorption isotherm. The obtained impedance results displayed a high convergence and the potentiodynamic polarization study exhibits mixed-type inhibition. The FT-IR, EDX spectroscopy, and scanning electron microscope studies have made it firmer than the inhibitor species are adsorbed on the Al surface.

کلمات کلیدی:

Ruellia tuberosa, Corrosion inhibition, Aluminium corrosion, Electrochemical impedance spectroscopy, Potentiodynamic polarization

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