

## Investigation of the Corrosion Inhibition Mechanism of *Tagetes erecta* Extract for Mild Steel in Nitric Acid: Gravimetric Studies

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**Abstract :** The extract of *Tagetes erecta* (marigold flower) was used as a green corrosion inhibitor for mild steel (MS) in nitric acid medium. The weight loss measurements were performed to understand the inhibition mechanism. The effect of temperature on the behaviour of mild steel corrosion without and with inhibitor was studied. The temperature studies revealed that the activation energy increased from 12 kJ/mol to 28.8 kJ/mol with the addition of 500 ppm inhibitor concentration. The thermodynamic analysis and the adsorption isotherm studies revealed that the molecules of inhibitor show physical adsorption on the surface of mild steel. Based on weight loss measurements, adsorption of the inhibitor on the surface of mild steel follows Langmuir isotherm.

**Keywords :** *Tagetes erecta*, corrosion, adsorption, inhibitor

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