



## Cialis (Tadalafil) Drug as Save Corrosion Inhibitor for Zn in Hydrochloric Acid Solution

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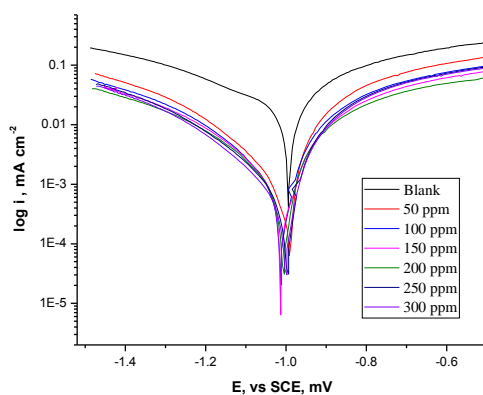
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### ABSTRACT

The inhibiting effect of Cialis drug on the corrosion of Zn in 1 M HCl was studied by weight loss (WL), potentiodynamic polarization (PP), electrochemical frequency modulation (EFM) and electrochemical impedance spectroscopy (EIS) techniques. The adsorption isotherm of Cialis drug on the Zn surface follows Langmuir adsorption isotherm. Some thermodynamic parameters were calculated and discussed. The results indicated that the inhibition efficiency (IE) increases with increasing the concentration of the drug, while decreases with increasing the temperature. The morphology of inhibited Zn was analyzed by scanning electron microscope (SEM), the energy dispersive X-ray spectroscopy (EDX), Fourier transform infrared spectroscopy (FTIR) and atomic force microscopy (AFM). Polarization results showed that this drug is mixed type inhibitor. The results obtained from chemical and electrochemical techniques are in good agreement.

### Graphical abstract:



**Keywords:** Adsorption, Corrosion inhibition, Zn, HCl, SEM, EDX, AFM, FTIR.