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## **Influence of *Cissus populnea* stem extract on kinetics and thermodynamics of mild steel corrosion in acidic medium**

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**Abstract.** The inhibition of mild steel corrosion in 1.0 M HCl and 0.5 M H<sub>2</sub>SO<sub>4</sub> by *Cissus populnea* stem extract was investigated using weight loss measurements in the temperature range of 303 – 333 K. Results from the study revealed that *Cissus populnea* stem extract inhibited the corrosion of mild steel in both acid media. Inhibition efficiency of the stem extract increased with increase in the extract concentration but decreased with immersion time. The kinetics of the reaction aligned with a first order type. Thermodynamics investigations showed that *Cissus populnea* extract is adsorbed on the steel surface through physical interactions, and the adsorption process was endothermic and spontaneous. Langmuir, Freundlich and Temkin isotherm models best described the adsorption mechanism of the stem extract on the steel surface.

**Keywords:** corrosion inhibition, *Cissus populnea* extract, mild steel, kinetics, temperature dependence, corrosion rate.

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