**ABSTRACT**

The corrosive behavior of mild steel in 0.05 M to 10 M H2SO4 solutions containing different concentrations of tetrahydropyrimidine derivatives (THPM) was investigated using weight loss method, gasometric technique, electrochemical studies which include AC - impedance and potentiodynamic polarization method, atomic absorption studies and synergistic effect. The results obtained reveal that THPM derivatives is an efficient mixed type inhibitor but slightly anodic and it is more effective in reducing corrosion of mild steel in H2SO4 media. The adsorption of the inhibitor on the mild steel surface obeys the Langmuir adsorption isotherm. The thermodynamic parameters of adsorption reveal a strong interaction and spontaneous adsorption of THPM on the mild steel surface. The influence of temperature and inhibitor concentration on the corrosion of mild steel has also been investigated.