**ABSTRACT**

The inhibitive action of thiadiazolopyrimidines on mild steel in 1 M H2SO4 has been studied using weight loss, gasometric studies and electrochemical polarization and AC impedance measurements. The effect of temperature on the corrosion behaviour of mild steel in 1 M H2SO4 with optimum concentration of inhibitors was studied in the temperature ranging from 313-333K The adsorption of the inhibitor on the surface of mild steel was found to be exothermic, spontaneous and followed the mechanism of physisorption. The adsorption of these compounds on mild steel surface was found to obey Langmuir adsorption isotherm. The protective film formed on the surface of mild steel by the adsorption of inhibitor in 1 M H2SO4 solution was confirmed by optical microscopic technique. Synergistic effect of halide ions on mild steel in 1 M H2SO4 was studied by weight loss technique