**ABSTRACT**

Four heterocyclic compounds, namely 4- phenyl-5-acetyl/carbethoxy-3-methyl-6hydroxyl-6-methyl-4,5,6,7-tetrahydro-2,1-benzoisoxazole and benzopyrazole (BIS1, BP1and BIS2, BP2), were synthesized and their influence on the inhibition of corrosion of mild steel in 1 M H2SO4 was investigated by means of weight loss, potentiodynamic polarization, electrochemical impedance (EIS) and scanning electron microscopy (SEM). The values of activation energy and free energy of adsorption of these compounds were also calculated. Adsorption obeys Langmuir adsorption isotherm. The IE of the compounds was found to vary with concentration and temperature. Synergistic effect was also investigated for the four compounds at 0.05 mM concentration by weight loss method in 1 M H2SO4 medium in presence of KI, KBr and KCl. Results obtained revealed that all the four compounds performed excellently as a corrosion inhibitor for mild steel in 1 M H2S04 and their efficiency attains more than 90% at 0.6 mM at 298 K. Polarisation studies showed them to be mixed type inhibitors.