**Abstract**

The present work aims at the synthesis, characterization and study on the inhibitive effect ofindoloimidazoline derivative (DI) on mild steel in 1M HCl. Weight loss measurement and electrochemicalAC and DC corrosion monitoring techniques are performed at 308 K using mild steel specimensimmersed in 1M HCl in the presence and absence of DI. Polarisation curves indicated that DI acted asa mixed type inhibitor. The indoloimidazoline derivative having nitrogen atoms in its molecular structureare adsorbed on the metal surface through these active centres and that the extent of inhibition isdirectly related to the formation of the adsorption layer according to Langmuir isotherm model on themild steel surface which is sensitive function of the molecular structure. Quantum chemical calculationsperformed using DFT B3LYP 6-31G (d, p) basis set within the program Gaussian 09 showed theadsorption sites for DI on mild steel. Experimental and theoretical findings agreed well with each other.