**ABSTRACT**

In the present investigation 1,8-naphthyridine compounds have been synthesized and its inhibition action on the corrosion of mild steel in 1M HCl was investigated by corrosion weight loss test, electrochemical impedance spectroscopy, potentiodynamic polarization and solution analysis techniques (AAS). Polarization measurements clearly indicate that the examined compounds acts as mixed inhibitors and the inhibition efficiency increases with inhibitor concentration. Changes in the impedance parameters (Rct and Cdl) are indicative of the adsorption of naphthyridine compounds on the metal surface, leading to the formation of protective film. Solution analyses were carried out by atomic absorption spectroscopy, which shows decreased dissolution of iron in the presence of inhibitors. Physical adsorption is proposed for the inhibition and the process followed the Langmuir adsorption isotherm.