**Abstract**

This paper deals with the N80 steel corrosion protection study in 15% HClwhich was carried by three quinoline derivatives namely 3-acetyl-1-(4-methylbenzylideneamino)quinolin-2-one (AQ-1), 3-acetyl-1-(4 hydroxybenzylideneamino)quinolin-2-one (AQ-2), 3-acetyl-1-(3-nitrobenzylideneamino) quinolin-2(1H)-one(AQ-3) using gravimetric, electrochemical, and quantum chemical studies. Tafel polarizationshowed that AQs are mixed type inhibitors but dominantly affect cathodicreaction more. The observed results reveal that AQ-1 is the best inhibitor. All thethree inhibitors were found to obey the Langmuir adsorption isotherm. Scanningelectron microscopy (SEM) micrographs supports the protection of the N80 steel byAQs. Quantum chemical study reveals that the inhibitors have a tendency to getprotonated and this protonated form has greater tendency to get adsorbed onto theN80 steel surface.