**ABSTRACT**

2,4-diphenyl-2,3-dihydro-1H-1,5-benzodiazepine (DPBD) and 4-phenyl-2-(2-ethoxy-3-hydroxyphenyl)-2,3-dihydro-1H-1,5-benzodiazepine (EPBD) were synthesized by the condensation of o-phenylenediamine and chalcone catalyzed by sulphated zirconia and characterized by FTIR spectra. Corrosion inhibition property of the benzodiazepines on mild steel in sulphuric acid medium was investigated by mass loss and electrochemical methods. The Compound EPBD showed better corrosion protection properties than DPBD both at room temperature and at higher temperatures. The results showed that the compounds act as good inhibitor and the efficiency increased with increase in their concentration. The adsorption of the inhibitors on the surface of mild steel was found to obey Langmuir adsorption isotherm. SEM study showed the formation of a protective adsorptive film of the inhibitor on mild steel surface.