The inhibition Activity of 1,10 - bis(2-formylphenyl)-1,4,7,10-tetraoxadecane (Ald) and its Schiff base (L) on the Corrosion of Carbon Steel in HCl: Experimental and Theoretical Studies

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The inhibitor effect of aldehyde and their Schiff base ligand on the corrosion of XC48 carbon steel in 1M HCl solution was investigated using weight loss measurements and electrochemical Methods. These compounds are an efficient corrosion inhibitors and their inhibition efficiency are increased with increasing inhibitor concentration. The Adsorption of these compounds on carbon steel surface obeys Langmuir's isotherm. The surfaces of carbon steel after exposing to test solutions were examined by atomic force microscopy. The quantum chemical parameters were calculated using the density functional method. The interaction between the Fe(100) surface and the inhibitors were performed by molecular dynamics simulations.

Keywords: Schiff base, DFT, MDS, AFM, Corrosion inhibition.

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