



Acetamidocoumarin as a based eco-friendly corrosion inhibitor

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Abstract : Eco-friendly corrosion inhibitor derived from coumarin namely 3-acetamidocoumarin was synthesized by reaction of salicylaldehyde and acetic acid. The chemical structure of 3-acetamidocoumarin had been elucidated using some spectroscopic techniques (Fourier transform infrared (FT-IR) and proton Nuclear magnetic resonance (NMR)) and elemental micro analysis (CHN). Inhibition efficiency of the synthesized inhibitor in corrosive solution was evaluated based on weight loss technique. Increasing in inhibition efficiency (IE %) was achieved by rising of concentrations of the green inhibitor and reach to 91% at the highest concentration, also the IE %, decrease with the rising of temperature. To establish the activity of 3-acetamidocoumarin as a perfect corrosion inhibitor, scanning electron microscopy (SEM) was utilized as another technique. From SEM technique we understand the mechanism of protection and it accomplished by adsorption of the eco-friendly inhibitor molecules on the MS (mild steel) surface and formation of protective film of the inhibitor on surface of the MS.

Keywords: 3-acetamidocoumarin, salicylaldehyde, acetic acid, green corrosion inhibitor, eco-friendly.

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