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Synthesis and characterization of coumarin-3-amineas a green organic inhibitorcomplemented with good inhibitive performance

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Abstract: Green corrosion inhibitor as coumarin derived was synthesized by reaction of 2-hydroxybemzaldehyde and 2-acetamidoacetic acid. The targetcompound was characterized by elemental micro analysis (CHN), Fourier transform infrared spectroscopy (FT-IR) and protonNuclear magnetic resonance spectroscopy (NMR) spectra, elucidating that the eco-friendly corrosion inhibitor was effectively prepared. The corrosion inhibition efficiency of the green inhibitor in hydrochloric acid solution was estimated by weight loss technique. The inhibitor and become 86% with the highest experimental concentration, moreover the inhibition efficiency, decrease with the rising of temperature. Scanning electron microscopy (SEM) realization established that the inhibition of mild steel has been accomplished by adsorption of the inhibitor on surface of the mild steel. Quantum chemical studies exhibit that the inhibitor has the tendency to be protonated in the corrosive solution and the results correspond with experimental noticing.

Keywords: N-(coumarin-3-yl)acetamide, coumarin-3-amine, Green corrosion inhibitor, eco-friendly.

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