Extract from *Clarias batrachus* Fins as Environmental Benign Corrosion Inhibitor for Mild Steel in Acidic Solution

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Received: 23 November 2021/ Accepted: 12 January 2022 / Published: 2 February 2022

Extract of *Clarias batrachus* fins (ECBF) was prepared and detached to solution to prevent mild steel from corroding in 0.5M sulfuric acid. Gravimetric (weight loss), electrochemical, and exterior characterization experiments were used to investigate the process. As the inhibitor concentration was increased, weight loss tests exposed a boost in inhibition effectiveness and a decrease in corrosion rate. Impedance studies suggested a maximum inhibition efficacy of 95.8% was achieved with 600 mg/L of ECBF inhibitor in corrosive media. Electrochemical frequency modulation (EFM) revealed that the casualty factors 2, 3 are consistent with theoretical values, and ECBF is more efficient than blank (0.5M H₂SO₄). The polarization data revealed that the ECBF inhibitor was predominantly cathodic. The ECBF layer generation on the steel surface was discovered using scanning electron microscopy (SEM) and atomic force microscopy (AFM).

Keywords: Mild steel; *Clarias batrachus*; Electrochemical; Corrosion; EFM; AFM

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