Biomass of Microalgae *Spirulina Maxima* as a Corrosion Inhibitor for 1020 Carbon Steel in Acidic Solution.

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In this paper, the biomass of the microalgae *Spirulina maxima*, a cyanobacterium that synthesizes high levels of protein, was studied as a natural inhibitor of the corrosion of carbon steel in 1 mol L^{-1} HCl by weight loss measurements, potentiodynamic polarization curves, electrochemical impedance measurements and surface analysis by scanning electron microscopy (SEM). The biomass of the microalgae *Spirulina maxima* acted as a good corrosion inhibitor reaching an inhibition efficiency of 96.4% after 72 h of immersion for an inhibitor concentration of 100 mg L^{-1} . The E_a increased with the addition of the inhibitor that characterizes the physical adsorption of the molecules present in the biomass of microalgae on the surface. This adsorption blocked the anodic and cathodic sites. The HMWF isolated from the total biomass showed an inhibition efficiency equal to the total biomass, which suggests that the macromolecules as proteins are probably responsible for the inhibitory action observed by the microalgae biomass.

Keywords: Acid Corrosion, Carbon Steel, Inhibitor, microalgae *Spirulina maxima*.

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