

A Comprehensive Study on Crude Methanolic Extract of *Daphne gnidium* L. as Effective Corrosion Inhibitors of Mild Steel Induced by SRB Consortium

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Abstract

The aim of the present work is the evaluation of effect of methanolic extract obtained from *Daphne gnidium* against biocorrosion caused by sulphate-reducing bacteria (SRB). Herein, the study of the influence of SRB consortium has been realized on the biological and electrochemical properties of the carbon steel API5LX60 immersed in water sample obtained from an Algerian oil field separator. The monitoring of the treatment effects on the SRB performance using kits test and weight loss methods showed a positive effect of the methanolic extract of *D. gnidium* as a corrosion inhibitor at a concentration of 0.8 g/L. In the other hand, the weight loss test has generated an efficiency rate of 95.99% at a concentration of 1.6 g/L. A linear polarization resistance approved these results, and they have given a yield of 91.14% with a polarization resistance value of 28.9 k Ω cm² at a concentration of 0.25 g/L.