

Natural extract of *Opuntia ficus indica* as green inhibitor for corrosion of XC52 steel in 1M H_3PO_4

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Abstract: The purpose of this study is to evaluate the anti-corrosive effect of natural extract of *Opuntia Ficus Indica* (O.F.I) for XC52 steel in 1M H_3PO_4 . Experimental work has been achieved by weight loss, potentiodynamic polarization and EIS measurement, as well as SEM surface characterization. Among the results obtained, we can mention an inhibitory efficiency of 90% by gravimetric method and 83.9% by electrochemical method at 10% (v/v) of O.F.I. Moreover, The O.F.I extract acts as a mixed inhibitor; however, adsorption free enthalpy indicates a physisorption. The adsorption obeys the Langmuir isotherm model. These results have been improved by SEM micrographs

Keywords : corrosion, *Opuntia ficus indica*, EIS, green inhibitor, XC52 steel