Total Phenolic content, Antioxidant and Anticorrosive Activities of *Olea europaea* L. and *Eucalyptus globulus* Cultivated in Tunisian Arid Zones on Steel Rebar's in Alkaline Chloride Solution

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The aim of this study is to investigate the anticorrosive action of aqueous extracts of some trees (*Olea europaea* L. and *Eucalyptus globulus*) cultivated in Tunisian arid zones on steel rebar's immersed in alkaline chloride medium. Polarization curves, Electrochemical Impedance Spectroscopy (EIS) measurements, Scanning Electron Microscopy (SEM) analyses and the mass loss method at various temperatures and concentration effects were used to carry out the present work. The results obtained from mass loss measurement showed that the inhibition efficiency(%IE) was greatly reduced with the increase of temperature. According to polarization results, the investigated extracts act as a mixed type inhibitor. The EIS results indicated that the corrosion inhibition efficiencies reached a value higher than 90% in the presence of *Olea europaea* rods (OER) extract and 80% of *Eucalyptus globulus* leaves (EGL) extract. SEM analyses of samples in the presence of aqueous extracts revealed the presence of a protective inhibitor layer on the metallic surface, resulting in the protection of steel rebar's from corrosion

Keywords: Alkaline chloride solution; anticorrosive activities; aqueous extracts; carbon-steel; inhibition

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