Evaluation of Antioxidant Activity and Inhibition of Corrosion by Brazilian Plant Extracts and Constituents

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This study reports the ability of phenolic and amino compounds contained in extracts of plants from Northeastern Brazil of inhibiting corrosion and its correlation with antiradical activity. A phytochemical study of alkaloid extract leads to the isolation of a compound, whose structure was determined by nuclear magnetic resonance spectroscopy. The following were performed; the evaluation of antioxidant activity, electrochemical study by potentiodynamic linear polarization, electrochemical impedance spectroscopy, immersion tests and analysis by scanning electron microscopy. The chromatography techniques were used to isolate the amino compound, which was identified as 4-(N-methylamino)-benzoic acid by ¹³C - and ¹H-NMR spectroscopy. This compound showed a superior anticorrosion performance than phenolic compounds and its origin extract. The adsorption phenomena had influence on corrosion inhibition more than antiradical activity.

Keywords: Carbon steel; Organic coatings; Acid corrosion; Adsorption, Antioxidant Activity.

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