Investigation of Inhibition Effect of Berberine on The Corrosion of Copper in Acidic Medium

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Copper is metal that has a wide range of applications due to its good properties. It is used in electronics, for production of wires, sheets, tubes, and also to form alloys. Copper is resistant toward the influence of atmosphere and many chemicals, however, it is known that in aggressive media it is susceptible to corrosion. The behavior of copper Cu. in acidic media is extensively investigated and several ideas have been presented for the dissolution process [1-3]. Corrosion inhibitors are substances which when added in small concentrations to corrosive media decrease or prevent the reaction of the metal with the media. The possibility of the copper corrosion prevention has attracted many researchers so until now numerous possible inhibitors have been investigated. Researches on the utilization of naturel products as inhibitors have increased in the recent years.

Berberine is a naturel product which is extracted from chinese copsis. In our study, the protection behavior of berberine has been investigated for copper in 0.5M HCl using Tafel polarization and electrochemical impedance spectroscopy (EIS). The surface characterization has been made by scannig electron microscopy (SEM). The fraction <theta> of the metal surface covered by the inhibitor is found to increase with inhibitor concentration. The adsorption of the inhibitor follows Langmuir isotherm. Copper with berberine gave better corrosion performance than bare copper in HCl medium.

REFERENCES