Carbon steel corrosion in HCl in the presence of aqueous extract of Melissa Officinalis

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ABSTRACT

The inhibitive action of the aqueous extract of Melissa officinalis toward the corrosion of C-steel in a 2.0 M HCl solution was investigated using weight loss measurements and Tafel polarization curves . It found that the extract acts as good corrosion inhibitor for tested system. The inhibition efficiency increases with increasing extract concentration. The inhibitive action of the extract is discussed with a view to adsorption of its component s onto the steel surface, making a barrier to mass and change transfer. The adsorption of extract components onto the steel surface was found to be a spontaneous process and to follow the Langmuir adsorption isotherm. It was found also that such adsorption increases the activation energy of the corrosion process.