Studi pemanfaatan ekstrak daun pletekan (ruellia tuberosa) fraksi air dan fraksi kloroform sebagai inhibitor korosi baja karbon = Utilization study of pletekan leaf extract (ruellia tuberosa) of water fraction and chloroform fraction as carbon steel corrosion inhibitor

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Abstrak

ABSTRAK
Baja karbon merupakan material umum yang digunakan sebagai bahan konstruksi pipa dalam industri minyak. Namun, sifat baja karbon sangat rentan untuk terjadinya korosi. Pada penelitian ini digunakan ekstrak tanaman daun pletekan fraksi air dan fraksi kloroform sebagai inhibitor korosi pada baja karbon. Efisiensi Inhibitor ditentukan berdasarkan metode weight loss. Karakterisasi ekstrak fraksi kloroform dan fraksi air serta lapisan yang terbentuk pada permukaan baja karbon diamati dengan Fourier Transform Infra Red FTIR , Morfologi permukaan baja karbon dengan Scanning Electron Microscopy-Energy Disspersive X-Ray SEM-EDS , serta keberadaan produk korosi Fe2O3 dengan X-Ray Diffraction XRD . Keberhasilan inhibitor korosi dalam melindungi baja karbon terlihat dari persen efisiensi inhibitor. Hasil seleksi didapatkan inhibitor terbaik adalah fraksi kloroform dengan efisiensi inhibitor sebesar 93,08 pada konsentrasi 750 ppm dan suhu 30oC dalam media HCl dan 94,44 dalam media brine. Adsorpsi inhibitor korosi fraksi air dan fraksi kloroform pada permukaan baja karbon mengikuti isoterm adsopsi Langmuir.
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ABSTRACT
Carbon steel is a common material used as a construction material in the oil industry pipes. However, the nature of the carbon steel is very susceptible to corrosion. In this study used extracts of the leaves of plants pletekan water fraction and chloroform fraction as a corrosion inhibitor in carbon steel. Inhibitor efficiency is determined by the method of weight loss Characterization extract chloroform fraction and water fraction and a layer formed on the surface of carbon steel were observed by Fourier Transform Infra Red FTIR , morphology carbon steel surface by Scanning Electron Microscopy Energy Dispersive X ray SEM EDS , as well as the presence of corrosion products Fe2O3 with X Ray Diffraction XRD . The success of corrosion inhibitors to protect carbon steel is determined by percent efficiency inhibitor. The result of selection is best inhibitors obtained chloroform fraction with inhibitor efficiency at 93.08 at a concentration of 750 ppm and the temperature in the media 30 C HCl and 94.44 in the medium brine. Adsorption corrosion inhibitor water fraction and chloroform fraction on the surface of carbon steel followed Langmuir isotherm adsorption.