

ABSTRACT

IDENTIFICATION OF ACTIVE COMPOUNDS FROM THE SHELL OF KERANJI TREE (*Dalium indum*) AS CORROSION INHIBITOR OF MILD STEEL

By

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In this study, the efficacy of active compounds isolated from the shell of keranji tree (*Dalium indum*) was tested as corrosion inhibitor of mild steel in corrosion media of brine solution concentrated with carbondioxide gas. Isolation of the active compounds was carried out by maceration method using methanol, followed by fractionation using chloroform and ethylacetate. Both fractions were found to be active as corrosion inhibitors, however the ethylacetate fraction was found to work much better. Corrosion inhibition was determined using two methods of weight loss measurement and potentiodynamic polarization. The extract sample is characterized by FT-IR and the surface of mild steel is characterized by SEM-EDS. Experiment without corrosion inhibitor resulted in a corrosion rate of 1.179 mmpy. Measurement of corrosion rate using the weight loss method indicated that the optimum concentration of the ethylacetate fraction was 200 ppm, resulting in a corrosion rate reduction to 0.534 mmpy which corresponds to 54.7% corrosion protection. Using the potentiodynamic polarization method, it was found that the optimum concentration was 250 ppm with I_{corr} of -6.91448 mA, which corresponds to a corrosion rate of 0.427 mmpy or 63.84% corrosion protection.

Keywords: mild steel, corrosion, inhibitor, keranji, brine solution, carbondioxide.