Inhibition effect of Ilex kudingcha C.J. Tseng (Kudingcha) extract on J55 Steel in 3.5wt% NaCl Solution Saturated with CO₂

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The corrosion effect on J55 steel in 3.5wt% NaCl solution saturated with CO₂ by ethanol extract of Ilex kudingcha C.J. Tseng (KDC) leaves has been studied using fourier transform infrared spectroscopy (FTIR), potentiodynamic polarization, electrochemical impedance spectroscopy (EIS) and scanning electron microscopy (SEM) methods. The results showed that KDC can be used as a good green inhibitor in the test solution. Inhibition efficiency increases with increasing the inhibitor concentration and KDC extract act as a mixed-type inhibitor. Adsorption behavior of the KDC extracts on J55 steel surface is also studied by Langmuir, Frumkin and Temkin isotherms and the data fitting results suggested that Langmuir isotherm model is the most suitable adsorption model.

Keywords: Corrosion inhibition; J55 steel; Adsorption isotherm; Electrochemical study

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