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Ethanol Stem Extract Of Mucuna Pruriens As Green Corrosion Inhibitor For Corrosion of Aluminium In H_2SO_4

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ABSTRACT

The corrosion inhibition of aluminium by the ethanol extract of stem of Mucuna pruriens in 2 M H_2SO_4 solution was studied by the weight loss method at temperature range of 301 K to 313 K. The percentage inhibition efficiency, %IE was found to increase with both the inhibitor concentration and temperature. The increase in % IE with rise in temperature is suggestive of chemical adsorption process. The values of ΔG_{ads} are all negative an indication of the spontaneity of the adsorption process and below -20 kJ mol^{-1}. Values of enthalpy of activation, ΔH_{ads} are positive and are lower than that of the blank, signifying inhibition effectiveness increases with increase in temperature. The data obtained there from best fitted the Freundlich, El-Awady, Temkin and Adejo-Ekwenchi isotherm. Due to conflicting figures obtained from the values of activation energy as to which of the mechanism of adsorption the inhibitor followed, the Adejo-Ekwenchi Isotherm was used to resolve the ambiguity and is chemisorption.

Keywords: Corrosion inhibitor**,** *Mucuna pruriens*, Chemisorption, Adsorption Isotherm.