

## Studi ekstrak areca flower sebagai inhibitor ramah lingkungan pada baja API 5L Gr B dalam larutan asam 1 M HCL = Study of areca flower extract as green corrosion inhibitor on steel API 5L Gr B in solution 1 M HCl acidic

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### Abstrak

Ekstrak areca flower telah diteliti sebagai inhibitor korosi pada baja API 5L Gr. B pada lingkungan 1 M HCl dengan menggunakan pengujian Linear Polarisasi dan Electrochemical Impedance Spectroscopy EIS. Penambahan konsentrasi inhibitor 4 ml, 8 ml, 12 ml, 16 ml, dan 20 ml dapat meningkatkan efisiensi inhibitor. Efisiensi inhibitor optimum terjadi pada saat penambahan konsentrasi inhibitor 20 ml sebesar 96.6 pada pengujian Electrochemical Impedance Spectroscopy EIS. Senyawa polifenol dan flavonoid yang terkandung dalam areca flower dapat menginhibisi korosi secara adsorpsi fisika yang membentuk lapisan monolayer yang dapat menghambat terjadinya korosi. Adsorpsi terjadi secara spontan sesuai dengan adsorpsi isothermal Langmuir. Sesuai hasil pengujian polarisasi menunjukkan ekstrak areca flower memiliki tipe inhibisi campuran mixed-type. Nilai energi bebas adsorpsi  $-7.026$  kJ/mol menunjukkan bahwa adsorpsi molekul inhibitor adalah adsorpsi fisika.

.....Areca flower has been investigated as green corrosion inhibitor on API 5L Gr B in solution 1 M HCl acidic using Linear polarization and Electrochemical Impedance Spectroscopy EIS. Addition of 4 ml, 8 ml, 12 ml, 16 ml, and 20 ml inhibitor corrosion increase efficiency of the inhibitor. Optimum inhibition efficiency occurs at addition at concentration 20 ml is 96.6 on Electrochemical Impedance Spectroscopy EIS testing. Polyphenolic and flavanoid compounds contained in the areca flower inhibit corrosion by physical adsorption, to form a monolayer which can inhibit corrosion. Adsorption occurs spontaneously in accordance with Langmuir isothermal adsorption. The polarization showed that the areca flower extract acts through mixed ndash type inhibition. The value of the free energy  $7.026$  kJ mol of adsorption indicated that the adsorption of inhibitor molecules was typical of physical adsorption.