Studi pengaruh ekstrak daun physalis angulata (daun ciplukan) sebagai inhibitor ramah lingkungan pada baja API 5L dalam lingkungan HCL 1 M = Study of physalis angulata leaves extract as green inhibitor for API 5L steel in HCL 1 M environment

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Abstrak

ABSTRAK
Kemampuan ekstrak daun Physalis angulata daun ciplukan sebagai inhibitor ramah lingkungan di lingkungan HCl 1 M diinvestigasi menggunakan pengujian polarisasi linear dan weight loss. Adapun diinvestigasi flavonoid dan antioksidan yang menginhibisi permukaan Baja API 5L melalui pengujian FTIR. Variabel bebas yang dipakai yaitu ekstrak konsentrasi inhibitor dalam HCl 1 M, yakni 10 mL, 20 mL, 30 mL, 40 mL, dan 50 mL. Ekstrak daun ciplukan mengandung senyawaan flavonoid yang merupakan inhibitor campuran yang dominan katodik. Inhibitor ini mampu mencegah kerusakan catastrophic akibat agresivitas HCl 1 M dengan mekanisme physisorption hingga 192 jam. Efisiensi inhibitor yang paling tinggi ada di konsentrasi 50 mL sebesar 98,9. Inhibitor ekstrak daun ciplukan berpotensi sebagai inhibitor ramah lingkungan bagi Baja API 5L dilingkungan HCl 1 M.
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ABSTRACT
The ability of Physalis angulata leaves extract as green inhibitor in HCl 1 M environment has been investigated with linear polarization measurement and weight loss method. FTIR analysis was used to investigate flavonoid and antioxidant compound that plays an important role to inhibit corrosion. The free variable that has been used in this study was 10 mL, 20 mL, 30 mL, 40 mL, dan 50 mL. Physalis angulata leaves extract that contain flavonoid play role as mixed inhibitor that predominantly cathodic. This inhibitor can prevent cathasthropic damage due to aggressiveness of HCl 1 M with physisorption mechanism up to 192 hours. The concentration that showed highest efficiency 98.9 was 50 mL. It can be concluded that Physalis angulata leaves extract could be used as an alternative and environmental friendly inhibitor for API 5L in HCl 1 M environment.