

Studi ekstrak daun pegagan centella asiatica sebagai inhibitor ramah lingkungan pada baja j55 di lingkungan air formasi = Study of centella asiatica leaves extract as green inhibitor for j55 steel in produce water environment

Andika, author

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Abstrak

Kemampuan ekstrak daun pegagan (*Centella asiatica*) sebagai inhibitor ramah lingkungan untuk baja J55 di lingkungan air formasi diinvestigasi dengan pengujian polarisasi tafel, weight loss, dan Electrochemical Impedance Spectroscopy (EIS). Senyawa fenolik dan antioksidan yang berperan untuk menghambat korosi diinvestigasi melalui pengujian FTIR. Selain itu, lapisan yang terbentuk di permukaan logam juga dipelajari dengan menggunakan Scanning Electron Microscope. Variabel yang digunakan adalah konsentrasi inhibitor, yaitu 0 ppm, 100 ppm, 250 ppm, 500 ppm, dan 1000 ppm. Ekstrak daun pegagan yang mempunyai gugus fenolik merupakan inhibitor jenis campuran, dan dominan anodik. Efisiensi inhibisi paling tinggi didapatkan dengan konsentrasi 250 ppm. Inhibitor ekstrak daun pegagan dapat digunakan sebagai alternatif inhibitor ramah lingkungan untuk baja J55 pada lingkungan air formasi.

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This study aimed to investigate the ability of *Centella asiatica* leaves extract as an environment friendly inhibitor for J55 steel in produce water environment. Corrosion inhibition ability of this extract was tested using tafel polarization, weight loss and electrochemical impedance spectroscopy methods. FTIR test was used to investigate phenolic and antioxidant compound that plays an important role to inhibit corrosion. In addition, formed layer on the metal surface was also studied using scanning electron microscope. In this study the concentration of *Centella asiatica* extract used was 0 ppm, 100 ppm, 250 ppm, 500 ppm, and 1000 ppm. It can be concluded that *Centella asiatica* extract could be used as an alternative and environmental friendly inhibitor for J55 steel in produce water environment.