ABSTRAK

EFEKTIVITAS EKSTRAK DAUN SALAM (*Syzygium polyantha L.*) SEBAGAI INHIBITOR KOROSI BAJA KARBON API 5L DI MEDIA KOROSI NaCl 3,5%

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Telah dilakukan penelitian mengenai efektivitas ekstrak daun salam (*Syzygium polyantha L.*) sebagai inhibitor korosi baja karbon API 5L di media korosi NaCl 3,5%. Pengujian dilakukan dengan metode kehilangan berat dan metode polarisasi elektrokimia. Pengujian dengan metode kehilangan berat dilakukan dengan variasi waktu perendaman 48 jam, 96 jam, 144 jam dan penambahan volume inhibitor ekstrak daun salam 0 ml, 2 ml, 4 ml, dan 6 ml. Pengujian dengan metode polarisasi elektrokimia dilakukan terhadap sampel dengan penambahan inhibitor 0 ml dan 6 ml. Hasil penelitian menunjukkan bahwa semakin meningkat volume inhibitor yang ditambahan dan semakin lama waktu perendaman, maka laju korosi yang terjadi semakin menurun, dan efisiensi inhibitor meningkat. Efisiensi inhibitor tertinggi terjadi pada sampel API-96-6 sebesar 74,96%. Karakterisasi *Scanning Electron Microscopy* (SEM), *Energy Dispersive Spectroscopy* (EDS), dan X-*Ray Diffraction* (XRD) dilakukan pada sampel API-144-0 dan API-144-6. Hasil karakterisasi *Scanning Electron Microscopy* (SEM) memperlihatkan lebih jelas adanya lubang (*hole*), gumpalan (*cluster*), dan retakan (*crack*) pada sampel API-144-0 dibandingkan sampel API-144-6 . Karakterisasi *Energy Dispersive Spectroscopy* (EDS) mengindentifikasi adanya unsur C (karbon), O (oksigen), Cl (klorida), Mn (mangan), dan Fe (besi). Hasil karakterisasi X-*Ray Diffraction* (XRD) memperlihatkan bahwa fasa yang terbentuk adalah Fe murni.

Kata kunci: Baja karbon API 5L, ekstrak daun salam (*Syzygium polyantha L.*), SEM-EDS, XRD.

ABSTRACT

THE EFFECTIVITY OF BAY LEAF (*Syzygium polyantha L.*) EXTRACT AS INHIBITORS CORROSION OF CARBON STEEL API 5L IN MEDIA CORROSION NaCl 3,5%

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Bay leaf extract was conducted as an inhibitor corrosion of carbon steel API 5L in media corrosion NaCl 3,5% by weight loss and electrochemical polarization method. Testing with weight loss method was carried out by varying the immersion time of 48 hours, 96 hours, 144 hours and the addition of bay leaf extract inhibitor volume of 0 ml, 2 ml, 4 ml, and 6 ml. While testing the electrochemical polarization method was conducted on samples with the addition of inhibitors 0 ml and 6 ml. The results showed that the more volume inhibitors were added and the longer the immersion time, the corrosion rate decreased, and efficiency inhibitor increased. The highest inhibitor efficiency is in sample API-96-6 of 74.96%. Characterization Scanning Electron Microscopy (SEM), Energy Dispersive Spectroscopy (EDS), and X-Ray Diffraction (XRD) was performed on samples of API-API-144-0 and 144-6. SEM results on sample API 144-0 showed more clearly the pores, agglomerations, and cracks than sample API-144-6. EDS results identified the elements of C (carbon), O (oxygen), Cl (chloride), Mn (manganese), and Fe (iron). And XRD results showed that the phase formed is pure Fe.

Keyword : carbon steel API 5L, bay leaf extract, SEM-EDS, XRD