

ABSTRAK

Proses korosi tidak dapat dihindari, tetapi dapat diminimalisir dengan cara proteksi pada logam atau mengendalikan laju korosi. Salah satu cara proteksi logam dari proses korosi adalah dengan menggunakan inhibitor. Dampak toksisitas dan mencemari lingkungan, maka penggunaan inhibitor konvensional ini menjadi masalah baru terhadap pengaruh kesehatan manusia dan ekosistem. Dengan demikian *green inhibitor* menjadi alternatif untuk digunakan agar menghasilkan performa anti-korosi yang aman. Pada penelitian ini dilakukan analisis perbandingan laju korosi menggunakan metode elektrokimia polarisasi potensiodinamik antara logam *stainless steel* 316L tanpa penambahan ekstrak bawang putih dengan penambahan larutan ekstrak bawang putih sebanyak 8 ml, 10 ml, dan 12 ml dalam media NaCl 3,5% untuk mengetahui potensi dan efisiensi dari ekstrak bawang putih sebagai *green inhibitor*. Sedangkan morfologi pada permukaan logam *stainless steel* 316L dilakukan uji *Scanning Electron Microscope* (SEM). Setelah dilakukan penelitian didapatkan hasil nilai rata rata laju korosi tertinggi sebesar 0,0082732 mmpy pada spesimen tanpa penambahan larutan ekstrak bawang putih dan nilai rata rata laju korosi terendah 0,0014547 mmpy pada spesimen dengan penambahan larutan ekstrak bawang putih sebanyak 12 ml sehingga didapat nilai efisiensi inhibisi maksimal sebesar 82%. Dari pengujian SEM morfologi permukaan logam *stainless steel* 316L terlihat ada gumpalan putih pada spesimen dengan penambahan larutan ekstrak bawang putih sebanyak 8 ml dan 12 ml.

Kata Kunci: Korosi, *Green Inhibitor*, Ekstrak Bawang Putih (*Allium Sativum*), *Scanning Electron Microscope* (SEM)

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**INHIBITION OF CORROSION RATE ON STAINLESS STEEL 316L USING
GREEN INHIBITOR WHITE CHICKEN EXTRACT (ALLIUM SATIVUM)
WITH MEDIA NaCl**

ABSTRACT

The corrosion process cannot be avoided, but it can be minimized by protecting the metal or controlling the corrosion rate. One way to protect metals from corrosion is by using inhibitors. The impact of toxicity and polluting the environment, the use of conventional inhibitors is a new problem to the influence of human health and ecosystems. Thus green inhibitors become an alternative to be used to produce safe anti-corrosion performance. In this study, a comparative analysis of corrosion rates using the potentiodynamic polarization electrochemical method was carried out between 316L stainless steel metal without the addition of garlic extract and the addition of 8 ml, 10 ml, and 12 ml garlic extract solutions in 3.5% NaCl media to determine the potential and efficiency of garlic extract as a green inhibitor. While the morphology on the surface of 316L stainless steel metal is done Scanning Electron Microscope (SEM) test. After the research, the highest average corrosion rate of 0.0082732 mmpy was obtained in the specimen without the addition of garlic extract solution and the lowest average corrosion rate of 0.0014547 mmpy in the specimen with the addition of garlic extract solution as much as 12 ml so that the maximum inhibition efficiency value of 82% was obtained. From SEM testing of 316L stainless steel metal surface morphology, it can be seen that there are white clumps in the specimen with the addition of garlic extract solution.

Keywords: Corrosion, Green Inhibitor, Garlic Extract (*Allium Sativum*), Scanning Electron Microscope (SEM)

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