

ABSTRACT

Detergent waste is one of the factors that cause environmental pollution, especially in waters. Conventional chemical-based detergents not only have the potential to cause corrosion of metals, but also contain substances that are harmful to the environment. This research aims to create an environmentally friendly bio-detergent by utilizing eco enzyme and duku skin extract (*Lansium domesticum*) which has antibacterial and anti-corrosion properties. This study aims to determine the characteristics of *ECOLAB* detergent and its activity as anti-corrosion. The research methodology includes the manufacture of eco enzyme through the fermentation process of fruit and vegetable waste, extraction of duku peel by maceration method and formulation of liquid bio-detergent with variations in concentration of duku peel extract F0 (0%), F1 (0.5%), F2 (1%), F3 (2%), F4 (5%). The tests conducted included physical characteristics of the detergent (organoleptic test, pH, foam stability, cleaning power, viscosity, specific gravity, and sedimentation), anti-corrosion test using the weight loss method, and antibacterial test against *Staphylococcus aureus*. The results showed that the most optimum *ECOLAB* bio-detergent was F4 with characteristics in the form of a thick brown preparation with lemon lime aroma, pH of 3, foam stability of 100%, viscosity of 204.0 mPa.s, specific gravity of 0.951 g/ml, sedimentation volume of 1,020 ml. In anticorrosive testing on *ECOLAB* formulas F1 and F4 showed the best protection against corrosion rate with weight loss of 0.003 mg and 0.004 mg lower than NaCl solution as negative control 0.014 mg. In antibacterial testing against *Staphylococcus aureus*, formulations F1 and F4 had the highest inhibition of 0.4 cm.

Keywords: Eco enzyme, duku skin, bio-detergent, anti-corrosion, antibacterial.