

RINA OKSELYA ANJELITA. NIM 210331100075 Formula Sabun Mandi Cair Berbasis *Eco enzyme* dan Ekstrak Kayu Mesoyi (*Massoia aromatic Becc.*) Di bawah bimbingan **Dr. Askur Rahman, S.TP., M.P. dan Dr. Supriyanto, S.TP., M.P.**

ABSTRAK

Penelitian ini bertujuan untuk mengetahui pengaruh penambahan ekstrak kayu mesoyi (*Massoia aromatica Becc.*) dan *eco enzyme* terhadap karakteristik fisik, kimia, dan aktivitas antibakteri sabun mandi cair. Penelitian dilakukan menggunakan Rancangan Acak Lengkap (RAL) faktorial dengan dua factor yaitu variasi volume ekstrak kayu mesoyi (5, 10, dan 15 mL) dan *eco enzyme* (50, 75, dan 150 mL). Parameter yang diamati meliputi pH, alkali bebas, bahan aktif, bobot jenis, viskositas, serta daya hambat antibakteri terhadap *Staphylococcus aureus* dan *Escherichia coli*. Data dianalisis menggunakan ANOVA dua arah pada taraf signifikansi 5% dan dilanjutkan dengan uji Duncan (DMRT). Hasil penelitian menunjukkan bahwa interaksi ekstrak kayu mesoyi dan *eco enzyme* berpengaruh nyata terhadap nilai pH, bahan aktif, bobot jenis, viskositas, serta aktivitas antibakteri sabun mandi cair. Nilai pH sabun berada pada kisaran basa, yaitu 10,2–11,2, dengan kecenderungan menurun pada penambahan *eco enzyme* volume tinggi. Kadar alkali bebas seluruh perlakuan berada pada rentang 0,005–0,006%, sehingga memenuhi persyaratan SNI 4085:2017 ($\leq 0,1\%$). Kadar bahan aktif meningkat seiring dengan bertambahnya volume ekstrak kayu mesoyi dan *eco enzyme*, dengan nilai tertinggi sebesar 9,2%. Nilai viskositas berkisar antara 2100,2–2291,4 mPa·s dan cenderung menurun pada penambahan *eco enzyme* 150 mL akibat efek pengenceran. Uji antibakteri menunjukkan bahwa seluruh formulasi memiliki aktivitas antibakteri kuat, dengan daya hambat tertinggi terhadap *Staphylococcus aureus* sebesar 34,7 mm dan terhadap *Escherichia coli* sebesar 35,1 mm. Berdasarkan hasil tersebut, dapat disimpulkan bahwa kombinasi ekstrak kayu mesoyi dan *eco enzyme* berpotensi digunakan sebagai bahan alami dalam formulasi sabun mandi cair yang ramah lingkungan, aman, dan memiliki aktivitas antibakteri yang baik.

Kata kunci: Sabun mandi cair, *Eco enzyme*, Kayu mesoyi, Antibakteri

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Formulation of Liquid Bath Soap Based on Eco enzyme and Mesoyi Wood Extract (Massoia aromatica Becc.). This study was conducted under the supervision of **Dr. Askur Rahman, S.TP., M.P. and Dr. Supriyanto, S.TP., M.P.**

ABSTRACT

This study aimed to evaluate the effect of adding Massoia bark extract (Massoia aromatica Becc.) and eco enzyme on the physical, chemical, and antibacterial characteristics of liquid bath soap. The research was conducted using a factorial Completely Randomized Design (CRD) with two factors, namely the concentration of Massoia bark extract (5, 10, and 15 mL) and eco enzyme (50, 75, and 150 mL). The observed parameters included pH, free alkali, active ingredients, density, viscosity, and antibacterial activity against Staphylococcus aureus and Escherichia coli. Data were analyzed using two-way ANOVA at a 5% significance level, followed by Duncan's Multiple Range Test (DMRT). The results showed that the interaction between Massoia bark extract and eco enzyme significantly affected pH, active ingredient content, density, viscosity, and antibacterial activity of the liquid soap. The pH values ranged from 10.2 to 11.2, indicating alkaline properties, with a decreasing trend at higher eco enzyme concentrations. Free alkali content ranged from 0.005–0.006%, meeting the requirements of SNI 4085:2017 ($\leq 0.1\%$). Active ingredient content increased with higher levels of Massoia extract and eco enzyme, reaching a maximum value of 9.2%. The viscosity values ranged from 2100.2 to 2291.4 mPa·s and tended to decrease at higher eco enzyme concentrations due to dilution effects. Antibacterial testing demonstrated strong antibacterial activity for all formulations, with the highest inhibition zones of 34.7 mm against Staphylococcus aureus and 35.1 mm against Escherichia coli. In conclusion, the combination of Massoia bark extract and eco enzyme shows strong potential as natural ingredients for environmentally friendly, safe, and antibacterial liquid bath soap formulations.

Keywords: Liquid Soap, Eco Enzyme, Massoia bark, Antibacterial Activity