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PENGARUH KONSENTRASI EKSTRAK BUAH LERAK SEBAGAI SURFAKTAN TERHADAP MUTU FISIK DAN AKTIVITAS ANTIBAKTERI SEDIAAN SABUN PADAT MINYAK SEREH

ABSTRAK

Latar Belakang: Sabun padat dihasilkan melalui proses saponifikasi antara lemak dan basa kuat seperti natrium hidroksida. Permintaan sabun berbahan alami meningkat seiring kesadaran masyarakat terhadap produk yang aman dan ramah lingkungan. Buah lerak (*Sapindus rarak* DC.) mengandung saponin sebagai surfaktan alami sehingga berpotensi diformulasikan menjadi sabun.

Tujuan: Penelitian ini bertujuan mengetahui pengaruh konsentrasi ekstrak buah lerak terhadap mutu fisik dan aktivitas antibakteri sabun padat minyak serreh.

Metode: Penelitian eksperimental ini menggunakan metode maserasi dengan etanol 96%. Sabun diformulasikan dengan konsentrasi ekstrak buah lerak 5%, 10%, dan 15%. Uji mutu fisik meliputi organoleptik, pH, tinggi busa, dan kestabilan busa. Aktivitas antibakteri terhadap *Staphylococcus aureus* diuji menggunakan metode difusi cakram. Data dianalisis dengan uji One Way ANOVA dan *Post Hoc*.

Hasil: Nilai pH berkisar 10,14–10,26, tinggi busa 5,6–8,6 cm, dan kestabilan busa 62–67%. Zona hambat antibakteri berkisar 15,92–18,66 mm. Konsentrasi 15% menghasilkan busa tertinggi, pH sesuai standar, serta zona hambat terbesar terhadap *Staphylococcus aureus*.

Kesimpulan: Ekstrak buah lerak berperan sebagai surfaktan alami yang memengaruhi mutu fisik dan aktivitas antibakteri sabun padat, dengan konsentrasi optimal 15%.

Kata kunci: Sabun padat, buah lerak, surfaktan, antibakteri.

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THE EFFECT OF SOAPBERRY EXTRACT CONCENTRATION AS A SURFACTANT ON THE PHYSICAL QUALITY AND ANTIBACTERIAL ACTIVITY OF SOLID SOAP FORMULATED WITH CITRONELLA OIL

ABSTRACT

Background: Solid soap is produced through a saponification process between fats and strong bases such as sodium hydroxide. The demand for natural-based soaps is increasing due to public awareness of safe and eco-friendly products. Soapnut (*Sapindus rarak* DC.) contains saponins as natural surfactants, making it potential for soap formulation.

Objective: This study aimed to evaluate the effect of different concentrations of soapnut extract on the physical quality and antibacterial activity of lemongrass oil solid soap.

Methods: This experimental study used maceration extraction with 96% ethanol. Soap was formulated with soapnut extract at concentrations of 5%, 10%, and 15%. Physical quality tests included organoleptic, pH, foam height, and foam stability. Antibacterial activity against *Staphylococcus aureus* was tested using the disc diffusion method, and data were analyzed using one-way ANOVA and *Post Hoc test*.

Results: The results showed pH 10.14–10.26, foam height 5.6–8.6 cm, and foam stability 62–67%. Antibacterial inhibition zones ranged from 15.92–18.66 mm. The 15% concentration produced the highest foam, acceptable pH, and the largest inhibition zone against *Staphylococcus aureus*.

Conclusion: Soapnut extract functions as a natural surfactant affecting physical quality and antibacterial activity, with 15% concentration providing optimal results.

Keywords: Solid soap, soapnut, surfactant, antibacterial.