

ABSTRAK

FORMULASI SEDIAAN KRIM ANTIJERAWAT EKSTRAK KULIT BATANG BAKAU HITAM (*Rhizophora mucronata* Lam.) DAN AKTIVITAS PADA *Propionibacterium acnes*

Via Sekar Nufikha¹, Warsinah², Dhadhang Wahyu Kurniawan²

Latar Belakang: Kerusakan pada kulit dapat menimbulkan masalah kesehatan pada kulit salah satunya adalah jerawat. Jerawat dapat disebabkan oleh adanya aktivitas bakteri *Propionibacterium acnes*. Antibiotik merupakan pengobatan yang umum digunakan. Namun, penggunaan jangka panjang dapat menimbulkan resistensi antibiotik. Kulit batang *R. mucronata* L. bisa menjadi alternatif yang dapat diformulasikan dalam sediaan krim. Tujuan penelitian adalah untuk mengetahui sediaan krim yang memenuhi syarat karakteristik sediaan krim, serta efektivitasnya dalam menghambat *P. acnes*.

Metodologi: Penelitian ini menggunakan metode Rancangan Acak Lengkap (RAL) dengan memvariasi konsentrasi ekstrak 0,5%, 1% dan 1,5% dalam sediaan krim. Hasil uji organoleptis, homogenitas, stabilitas *freeze thaw* dan antibakteri dianalisis secara deskriptif. Viskositas, pH, daya sebar, dan daya lekat dianalisis dengan one way ANOVA dan uji LSD.

Hasil Penelitian: Hasil penelitian menunjukkan variasi konsentrasi ekstrak memberikan pengaruh terhadap sediaan krim dengan hasil analisis statistik ($p < 0,05$). Formula sediaan krim memenuhi syarat sifat fisik serta stabil selama penyimpanan. Hasil zona hambat pada F0, F1, F2 dan F3 masing-masing sebesar $0,3 \text{ mm} \pm 0,58$, $5,7 \text{ mm} \pm 0,58$, $7,0 \text{ mm} \pm 0,50$ dan $8,2 \text{ mm} \pm 0,76$.

Kesimpulan: Formula sediaan krim dengan konsentrasi ekstrak 0,5%, 1% dan 1,5% memenuhi syarat sifat dan stabilitas fisik. Sediaan krim dengan konsentrasi ekstrak 1,5% menghasilkan zona hambat terbesar.

Kata Kunci: Sediaan krim, *Rhizophora mucronata* Lam., Antibakteri, Jerawat, *Propionibacterium acnes*

¹Mahasiswa Jurusan Farmasi, Fakultas Ilmu-Ilmu Kesehatan, Universitas Jenderal Soedirman

²Dosen Jurusan Farmasi, Fakultas Ilmu-Ilmu Kesehatan, Universitas Jenderal Soedirman

ABSTRACT

FORMULATION OF ANTI-ACNE CREAM BLACK MANGROVE BARK EXTRACT (*Rhizophora mucronata* Lam.) AND ACTIVITIES ON *Propionibacterium acnes*

Via Sekar Nufikha¹, Warsinah², Dhadhang Wahyu Kurniawan²

Background: Damage to the skin can cause health problems on the skin, one of which is acne. Acne can be caused by the activity of *Propionibacterium acnes* bacteria. Antibiotics are a commonly used treatment. However, long-term use can lead to antibiotic resistance. *R. mucronata* L. stem bark can be an alternative that can be formulated in a cream preparation. The aim of the study was to determine the cream preparation that meets the requirements of cream preparation characteristics, as well as its effectiveness in inhibiting *P. acnes*.

Methodology: This study used the *Completely Randomized Design* (CRD) method by varying the concentration of 0.5%, 1% and 1.5% extracts in cream preparations. Organoleptic, homogeneity, freeze thaw stability and antibacterial test results were analyzed descriptively. Viscosity, pH, spreadability, and stickiness were analyzed by one way ANOVA and LSD test.

Results: The results showed that variations in extract concentrations had an effect on cream preparations with statistical analysis results ($p < 0.05$). The cream preparation formula meets the requirements of physical properties and is stable during storage. The inhibition zone results in F0, F1, F2 and F3 were $0.3 \text{ mm} \pm 0.58$, $5.7 \text{ mm} \pm 0.58$, $7.0 \text{ mm} \pm 0.50$ and $8.2 \text{ mm} \pm 0.76$, respectively.

Conclusion: Cream formulations with extract concentrations of 0.5%, 1% and 1.5% met the requirements of physical properties and stability. Cream preparation with 1.5% extract concentration produces the largest inhibition zone.

Keywords: Cream preparation, *Rhizophora mucronata* Lam., Antibacterial, Acne, *Propionibacterium acnes*

¹Student of Department of Pharmacy, Faculty of Health Sciences, Universitas Jenderal Soedirman
²Lecturer of Department of Pharmacy, Faculty of Health Sciences, Universitas Jenderal Soedirman