

ABSTRAK

Jerawat merupakan salah satu masalah kulit yang sering terjadi dan salah satu bakteri yang berperan dalam timbulnya jerawat adalah *Propionibacterium acnes*. Penggunaan antibiotik topikal secara jangka panjang dapat menyebabkan resistensi, sehingga diperlukan alternatif bahan alam yang berpotensi sebagai antibakteri. Daun kelor (*Moringa oleifera* Lam.) diketahui mengandung senyawa aktif seperti flavonoid, tanin, dan fenolik yang memiliki aktivitas antibakteri. Penelitian ini bertujuan untuk mengetahui pengaruh variasi konsentrasi formulasi gel ekstrak etanol daun kelor terhadap efektivitas antibakteri dalam menghambat pertumbuhan *Propionibacterium acnes*.

Metode penelitian yang digunakan adalah penelitian eksperimental murni. Ekstrak etanol 50% daun kelor diformulasikan ke dalam sediaan gel dengan variasi konsentrasi 10%, 15%, dan 20%. Evaluasi sediaan meliputi uji organoleptis, pH, viskositas, daya sebar, dan homogenitas. Uji aktivitas antibakteri dilakukan menggunakan metode difusi sumuran terhadap *Propionibacterium acnes*. Data diameter zona hambat dianalisis secara statistik menggunakan uji *Shapiro-Wilk*, uji *Kruskal-Wallis*, dan uji *Mann-Whitney*.

Hasil penelitian menunjukkan bahwa seluruh formula gel memiliki karakteristik fisik yang baik dan memenuhi persyaratan sediaan topikal. Uji antibakteri menunjukkan bahwa gel ekstrak etanol daun kelor mampu menghambat pertumbuhan *Propionibacterium acnes*, dengan aktivitas yang meningkat seiring bertambahnya konsentrasi ekstrak. Analisis statistik menunjukkan adanya perbedaan bermakna antar kelompok perlakuan ($p < 0,05$), sehingga hipotesis alternatif diterima. Disimpulkan bahwa variasi konsentrasi formulasi gel berpengaruh terhadap efektivitas antibakteri ekstrak etanol daun kelor, sehingga berpotensi dikembangkan sebagai sediaan gel anti-jerawat.

Kata kunci: Jerawat, *Propionibacterium acnes*, kelor, gel, antibakteri.

ABSTRACT

Acne is a common skin problem, and one of the bacteria involved in its development is Propionibacterium acnes. Long-term use of topical antibiotics may lead to bacterial resistance; therefore, alternative antibacterial agents from natural sources are needed. Moringa leaves (Moringa oleifera Lam.) contain bioactive compounds such as flavonoids, tannins, and phenolic compounds that have antibacterial potential. This study aimed to determine the effect of variations in gel formulation concentration of ethanolic extract of moringa leaves on antibacterial effectiveness against Propionibacterium acnes.

This research was an experimental laboratory study. 50% ethanol extract of moringa leaves was formulated into gel preparations with concentration variations of 10%, 15%, and 20%. The gel formulations were evaluated for their physical characteristics, including organoleptic properties, pH, viscosity, spreadability, and homogeneity. Antibacterial activity was tested using the diffusion method against Propionibacterium acnes. The inhibition zone diameter data were statistically analyzed using the Shapiro-Wilk test, Kruskal-Wallis test, and Mann-Whitney test.

The results showed that all gel formulations had good physical characteristics and met the requirements for topical preparations. Antibacterial testing demonstrated that the ethanolic extract gel of moringa leaves was able to inhibit the growth of Propionibacterium acnes, with antibacterial activity increasing as the extract concentration increased. Statistical analysis indicated a significant difference among treatment groups ($p < 0.05$), therefore the alternative hypothesis was accepted. It can be concluded that variations in the concentration of moringa leaf ethanolic extract gel significantly affect its antibacterial effectiveness, indicating its potential to be developed as an anti-acne gel preparation.

Keywords: Acne, Propionibacterium acnes, moringa, gel, antibacterial.