

ABSTRAK

Ulkus diabetik merupakan komplikasi serius diabetes melitus dengan proses penyembuhan luka yang lambat dan risiko tinggi infeksi bakteri, terutama *Staphylococcus aureus*. Brotowali (*Tinospora crispa* L. Miers) mengandung senyawa bioaktif yang berpotensi sebagai antibakteri dan agen penyembuhan luka sehingga dapat diformulasikan dalam sediaan topikal. Penelitian ini bertujuan merancang emulgel fraksi air daun brotowali dan mengevaluasi aktivitas antibakterinya terhadap *Staphylococcus aureus*. Metode eksperimental meliputi ekstraksi maserasi etanol 96%, fraksinasi cair-cair, skrining fitokimia, formulasi emulgel dengan konsentrasi fraksi air 10%, 30%, dan 40%, serta uji antibakteri metode difusi cakram. Evaluasi fisik emulgel mencakup organoleptik, homogenitas, pH, dan daya sebar. Hasil penelitian menunjukkan bahwa hasil ekstrak mencapai 21,87% dan hasil fraksi air sebesar 7,9%, dengan keberadaan metabolit sekunder seperti flavonoid, alkaloid, tanin, saponin, dan terpenoid. Pengujian antibakteri menunjukkan bahwa fraksi air daun brotowali memiliki aktivitas antibakteri yang sedang, sedangkan sediaan emulgel fraksi air menunjukkan peningkatan yang signifikan dalam penghambatan terhadap *Staphylococcus aureus*, dengan zona penghambatan tertinggi pada konsentrasi 40%. Semua formula emulgel memenuhi kriteria sifat fisik untuk sediaan topikal. Disimpulkan bahwa emulgel fraksi air daun brotowali berpotensi dikembangkan sebagai sediaan topikal antibakteri untuk mendukung penyembuhan ulkus diabetik.

Kata kunci: : Emulgel, Fraksi Air Daun Brotowali, Ulkus Diabetik

ABSTRACT

Diabetic ulcers are a serious complication of diabetes mellitus with a slow wound healing process and a high risk of bacterial infection, especially *Staphylococcus aureus*. *Tinospora crispa* L. Miers contains bioactive compounds that have the potential as antibacterial and wound healing agents so that they can be formulated in topical preparations. This study aims to design an emulgel from the water fraction of *Tinospora crispa* leaves and evaluate its antibacterial activity against *Staphylococcus aureus*. Experimental methods include 96% ethanol maceration extraction, liquid-liquid fractionation, phytochemical screening, emulgel formulation with water fraction concentrations of 10%, 30%, and 40%, and antibacterial testing using the disc diffusion method. Physical evaluation of the emulgel includes organoleptic, homogeneity, pH, and spreadability. The results showed that the extract yield reached 21.87% and the water fraction yield was 7.9%, with the presence of secondary metabolites such as flavonoids, alkaloids, tannins, saponins, and terpenoids. Antibacterial testing showed that the water fraction of brotowali leaves had moderate antibacterial activity, while the water fraction emulgel preparation showed a significant increase in inhibition against *Staphylococcus aureus*, with the highest inhibition zone at a concentration of 40%. All emulgel formulas met the physical property criteria for topical preparations. It was concluded that the aqueous fraction emulgel from *Tinospora crispa* leaves has the potential to be developed as a topical antibacterial preparation to support the healing of diabetic ulcers.

Keywords: Emulgel, Aqueous fraction of tinospora crispa Leaves, diabetic ulcer