

ABSTRAK

Infeksi jamur *Candida albicans* masih menjadi masalah kesehatan yang cukup tinggi di Indonesia, sementara penggunaan antijamur sintesis secara terus-menerus berpotensi menyebabkan resistensi. Daun jambu biji kristal (*Psidium guajava* L.) diketahui mengandung senyawa metabolit sekunder seperti flavonoid, tanin, saponin, dan minyak atsiri yang berpotensi sebagai antijamur alami. Metode *Solvent-Free Microwave Extraction* (SFME) dipilih karena lebih efisien, ramah lingkungan, serta mampu menghasilkan minyak atsiri dengan kualitas yang lebih baik dibandingkan metode ekstraksi konvensional. Penelitian ini bertujuan untuk menganalisis komponen fitokimia minyak atsiri daun jambu biji kristal hasil ekstraksi SFME, mengevaluasi karakteristik fisik salep, serta menentukan formulasi salep yang memiliki aktivitas antijamur terbaik terhadap *Candida albicans*. Penelitian menggunakan metode eksperimen laboratorium dengan ekstraksi minyak atsiri menggunakan SFME pada daya 700 W selama 180 menit. Minyak atsiri kemudian diformulasikan ke dalam sediaan salep dengan konsentrasi 3%, 6%, dan 9%. Analisis dilakukan menggunakan GC-MS, uji organoleptik, homogenitas, pH, daya sebar, serta uji aktivitas antijamur metode difusi sumuran terhadap *Candida albicans*. Hasil penelitian menunjukkan bahwa minyak atsiri berhasil diperoleh dengan rendemen sebesar 0,469% dan kadar air bahan 66,6%. Analisis GC-MS mengidentifikasi β -caryophyllene sebagai senyawa dominan. Sediaan salep memenuhi karakteristik fisik yang baik dan diharapkan menunjukkan aktivitas antijamur yang meningkat seiring bertambahnya konsentrasi minyak atsiri. Dengan demikian, minyak atsiri daun jambu biji kristal hasil ekstraksi SFME berpotensi dikembangkan sebagai bahan aktif salep antijamur alami yang efektif, ramah lingkungan, dan memiliki prospek sebagai alternatif pengobatan infeksi *Candida albicans*.

Kata kunci: *Candida albicans*, daun jambu biji kristal, minyak atsiri, *Solvent-Free Microwave Extraction*, salep.

ABSTRACT

Candida albicans infection remains a significant public health concern in Indonesia, while prolonged use of synthetic antifungal drugs may lead to antifungal resistance. Crystal guava (*Psidium guajava* L.) leaves contain secondary metabolites, including flavonoids, tannins, saponins, and essential oils, which have potential as natural antifungal agents. Solvent-Free Microwave Extraction (SFME) was selected because it is more efficient, environmentally friendly, and capable of producing higher-quality essential oil than conventional extraction methods. This study aimed to analyze the phytochemical composition of crystal guava leaf essential oil extracted using SFME, evaluate the physical characteristics of the ointment formulation, and determine the optimum ointment formulation with antifungal activity against *Candida albicans*. This laboratory experimental study employed SFME at 700 W for 180 minutes to obtain the essential oil. The extracted oil was formulated into ointments containing 3%, 6%, and 9% essential oil. The samples were analyzed using GC-MS, followed by organoleptic, homogeneity, pH, spreadability, and agar well diffusion antifungal tests against *Candida albicans*. The results showed that the essential oil produced a yield of 0.469%, while the moisture content of the raw material was 66.6%. GC-MS analysis identified β -caryophyllene as the predominant compound. The ointment formulations exhibited acceptable physical characteristics and were expected to demonstrate improved antifungal activity with increasing essential oil concentration. In conclusion, crystal guava leaf essential oil extracted by SFME has promising potential as an effective, eco-friendly natural antifungal ointment and may serve as an alternative topical treatment for *Candida albicans* infection.

Keywords: *Candida albicans*, crystal guava leaves, essential oil, ointment, Solvent-Free Microwave Extraction.