UJI AKTIVITAS SEDIAAN MIKROENKAPSULASI EKSTRAK ETANOL DAUN TEMU MANGGA (*Curcuma mangga* valeton) SEBAGAI ANTIDIABETES TERHADAP TIKUS PUTIH

ABSTRAK

Diabetes melitus merupakan gangguan metabolik kronis yang memerlukan pengembangan terapi pendukung berbasis bahan alam yang aman dan efektif. Daun temu mangga (*Curcuma mangga Valeton*) mengandung metabolit sekunder yang berpotensi sebagai antidiabetes, tetapi stabilitas senyawa aktif bahan alam perlu ditingkatkan melalui sistem penghantaran yang sesuai. Penelitian ini bertujuan mengetahui aktivitas antidiabetes sediaan mikroenkapsulasi ekstrak etanol daun temu mangga terhadap tikus putih yang diinduksi aloksan. Penelitian dilakukan secara eksperimental menggunakan enam kelompok, yaitu kontrol normal, kontrol diabetes, kontrol positif metformin, serta tiga kelompok formula mikroenkapsulasi. Ekstrak dibuat dengan maserasi etanol 80%, sedangkan mikroenkapsulasi dibuat dengan metode gelasi ionik menggunakan natrium alginat, kitosan, dan CaCl2. Kadar glukosa darah diukur sebelum induksi, hari ke-0, ke-3, ke-7, ke-12, dan ke-15. Data dianalisis menggunakan Repeated Measures ANOVA, uji Tukey HSD, dan Kruskal-Wallis. Hasil menunjukkan bahwa formula mikroenkapsulasi menurunkan kadar glukosa darah secara bertahap. Formula 3 memberikan penurunan terbesar di antara formula, yaitu 71,79%, dengan kadar akhir 135,6 mg/dL. Kesimpulannya, mikroenkapsulasi ekstrak etanol daun temu mangga berpotensi sebagai sediaan antidiabetes, dengan Formula 3 sebagai formula paling efektif.

Kata kunci: aloksan; antidiabetes; *Curcuma mangga*; daun temu mangga; mikroenkapsulasi.

ACTIVITY TEST OF MICROENCAPSULATION PREPARATION OF ETHANOLIC EXTRACT OF MANGGO LEAF (*Curcuma mangga* valeton) AS AN ANTIDIABETES AGAINST WHITE RATS

ABSTRACT

Diabetes mellitus is a chronic metabolic disorder that requires the development of safe and effective natural product-based supportive therapy. Mango ginger leaves (Curcuma mangga Valeton) contain secondary metabolites with potential antidiabetic activity; however, the stability of natural active compounds needs to be improved through an appropriate delivery system. This study aimed to determine the antidiabetic activity of microencapsulated ethanol extract of mango ginger leaves in alloxan-induced white rats. This experimental study used six groups: normal control, diabetic control, positive control treated with metformin, and three microencapsulated formula groups. The extract was prepared by maceration using 80% ethanol, while microencapsulation was performed by ionic gelation using sodium alginate, chitosan, and CaCl2. Blood glucose levels were measured before induction and on days 0, 3, 7, 12, and 15. Data were analyzed using Repeated Measures ANOVA, Tukey HSD, and Kruskal-Wallis tests. The results showed that the microencapsulated formulas gradually reduced blood glucose levels. Formula 3 showed the greatest reduction among the formulas, reaching 71.79%, with a final glucose level of 135.6 mg/dL. In conclusion, microencapsulated ethanol extract of mango ginger leaves has potential as an antidiabetic preparation, with Formula 3 as the most effective formula.

Keywords: alloxan; antidiabetic; Curcuma mangga; mango ginger leaves; microencapsulation