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UJI AKTIVITAS ANTIOKSIDAN FRAKSI EKSTRAK KULIT BUAH MANGGIS (*Garcinia mangonstana* L.) DAN FORMULASINYA DALAM BENTUK SEDIAAN MIKROEMULSI

[Antioxidant Activity Test of Mangosteen Pericarp Extract Fractions (Garcinia mangonstana L.) and Microemulsion Preparation Formulation]

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Abstrak

Telah berhasil dilakukan uji aktivitas antioksidan terhadap fraksi kulit buah manggis dan formulasi fraksi dalam bentuk sediaan mikroemulsi. Ekstraksi kulit manggis dilakukan secara maserasi menggunakan etanol 95% dan fraksinasi dengan ekstraksi cair-cair menggunakan pelarut air, etil asetat, dan n-heksana. Penentuan aktivitas antioksidan dilakukan dengan metode peredaman DPPH dan dipilih fraksi dengan nilai IC50 (Inhibitory concentration 50%) yang paling rendah. Mikroemulsi dibuat dengan dengan menggunakan fasa minyak VCO, surfaktan tween 80, dan kosurfaktan kombinasi propilenglikol dan gliserin. Terhadap sediaan mikroemulsi dilakukan uji stabilitas fisik dan uji stabilitas dipercepat pada suhu 40°C selama 28 hari penyimpanan. Hasil uji aktivitas antioksidan menunjukkan nilai IC50 fraksi air, n-heksana, dan etil asetat berturut-turut 56,03±3,78; 31,42±1,86; dan 21,21±0,06 µg/mL. Fraksi etil asetat memiliki aktivitas antioksidan tertinggi yang berbeda bermakna secara statistik dibandingkan fraksi air dan n-heksana (p≤0,05). Mikroemulsi mengandung VCO 6%, tween 80 35%, propilenglikol 20%, gliserin 10% dengan tiga variasi konsentrasi fraksi etil asetat (0,5; 2% dan 5%) jernih dan stabil secara fisik berdasarkan hasil uji stabilitas.

Kata kunci: Kulit buah manggis, fraksi ekstrak buah manggis, antioksidan, mikroemulsi

Abstract

Antioxidant activity test on mangosteen pericarp extract fractions and its microemulsion preparation formulation has been done. Extraction of mangosteen pericarp was done by maceration process using ethanol 95%. The extract was fractionated by liquid-liquid extraction using water, ethylacetate, and n-hexane solvents. Determination of antioxidant activity conducted by DPPH method and the fraction with lowest value of IC50 was selected to be formulated. Microemulsion was made using VCO as the oil phase, tween 80 as the surfactant, and propylenenglycol/glyerine as cosurfactants. Microemulsion preparation was evaluated by physical and accelerated stability tests at 40°C for 28 days of storage. Antioxidant activity test showed that the IC50% values of the water, n-hexane, and ethyl acetate fractions were 56.03 ± 3.78; 31.42 ± 1.86, and 21.21 ± 0.06 µg/mL, respectively. Ethyl acetate fraction had the highest antioxidant activity, significantly different to the water and n-hexane fractions (p ≤ 0,05). The microemulsion consisted of VCO 6%, tween 80 35%, propyleneglycol 20%, glycerin 10% with three variations of concentration ethyl acetate fractions (0.5, 2% and 5%). The preparations was transparent and physically stable based physically and stability tests.

Keywords: Mangosteen pericarp, fractions, antioxidant, microemulsion