INTISARI

Sifat fisik dan stabilitas fisik mikroemulsi dipengaruhi oleh surfaktan dan kosurfaktan sebagai penyusunnya serta komposisi keduanya. Penelitian ini bertujuan untuk melihat pengaruh perbandingan komposisi surfaktan dan kosurfaktan terhadap sifat fisik dan stabilitas fisik mikroemulsi askorbil palmitat dan alfa tokoferol, serta daya antioksidan dan potensi iritasinya.

Pada penelitian ini dibuat lima formula tengan perbandingan antara tween 80 : PEG 400 yaitu : 2:1, 3:1, 4:1, 5:1, dan 6:1. Seluruh formula diuji sifat fisik meliputi organoleptis, tipe mikroemulsi, bobot jenis, indeks bias, pH, transmitansi, viskositas, dan ukuran droplet. Stabilitas fisik diuji dengan metode sentrifugasi dan *freeze thaw*, mengamati perubahan organoleptis, pH, transmitansi, viskositas, dan ukuran droplet sebelum dan sesudah *freeze thaw*. Data dianalisis secara statistik menggunakan menggunakan uji ANOVA satu arah dengan taraf kepercayaan 95% dengan *software R3.0.1*.. Sediaan diuji HET-CAM untuk mengamati potensi iritasi, sementara aktivitas antioksidan diuji menggunakan metode DPPH.

Hasil penelitian menunjukkan bahwa semakin tinggi perbandingan tween 80 dan PEG 400 berpengaruh signifikan pada viskositas dan pH, namun tidak berpengaruh signifikan terhadap organoleptis, bobot jenis, transmitansi, dan indeks bias sediaan mikroemulsi yang dihasilkan. Seluruh formula menghasilkan mikroemulsi yang stabil dan tidak mengiritasi. Sediaan mikroemulsi askorbil palmitat dan alfa tokoferol memiliki kemampuan antioksidan yang sangat kuat.

Kata kunci : mikroemulsi, askorbil palmitat, alfa tokoferol, surfaktan, kosurfaktan

ABSTRACT

Physical properties and physical stability of microemulsion can be affected by the surfactant and the cosurfactant constituent and composition of both of them. This study aimed to investigate the effect of surfactant and cosurfactant ratio on the physical properties and physical stability of the microemulsion ascorbyl palmitate and alpha tocopherol. It also aimed to observe the antioxidants activity and irritation risk of the microemulsion.

In this study a comparison was made of five formulas between tween 80: PEG 400, the comparison are : 2: 1, 3: 1, 4: 1, 5: 1 and 6: 1. All formula were tested in terms of physical properties including organoleptic, microemulsion type, specific gravity, refractive index, pH, transmittance, viscosity, and droplet size. Physical stability was tested by using centrifugation and freeze thaw method, observing the changes in organoleptic, pH, transmittance, viscosity, and droplet size before and after freeze thaw treatment. Data were statistically analyzed by one-way ANOVA with 95% level of confidence using the software of R3.0.1.. Irritation potential was tested by using HET-CAM method, while antioxidant activity by DPPH method.

The results showed that the increase of the ratio of tween 80 and PEG 400 increased the viscosity and pH, but gave no significant effect on the organoleptic, specific gravity, transmittance, and the refractive index of the resulting microemulsion preparation. All formulas produce stable microemulsion without any irritation risk. Moreover the microemulsion of ascorbyl palmitate and alpha tocopherol showed very strong antioxidant activity.

Key words : microemulsion, ascorbyl palmitate, alpha tocopherol, surfactant, cosurfactant