Uji solubilisasi dan stabilisasi zat warna kurkumin menggunakan mikroemulsi biosurfaktan daun pletekan (ruellia tuberosa l.) = Solubility and stability of curcumin microemulsion using biosurfactant ruellia tuberosa l.

Yayang Nurkarima Deastri, author

Abstrak

ABSTRAK
Kurkumin yang berasal dari kunyit dapat digunakan sebagai pewarna alami minuman, namun kurkumin sukar larut dalam air dan rentan terhadap suhu dan cahaya. Pada penelitian ini, telah diuji kemampuan mikroemulsi untuk meningkatkan kelarutan kurkumin dalam air dan meningkatkan kestabilannya terhadap suhu dan cahaya. Mikroemulsi dibuat dengan menggunakan biosurfaktan saponin dari ekstrak daun pletekan, span 20 sebagai kosurfaktan, palm oil sebagai fasa minyak, dan air. Ekstraksi daun pletekan dilakukan dengan cara maserasi. Hasil uji fitokimia menunjukkan saponin terkandung dalam fraksi air, selanjutnya daun pletekan fraksi air dikarakterisasi menggunakan spektrofotometer UV-Vis dan FTIR. Formulasi mikroemulsi optimum adalah pada perbandingan saponin terhadap span 20 Sm 9:1 v/v dan perbandingan Sm terhadap palm oil 10:1 v/v . Hasil uji dengan mikroskop optik diperoleh mikroemulsi tipe minyak dalam air M/A . Mikroemulsi memiliki ukuran partikel antara 5,615-15,69 nm hasil pengujian dengan Particle Size Analyzer PSA . Solubilisasi kurkumin mengalami peningkatan dari 0,0004 mg/mL, menjadi 5,2 mg/mL dalam mikroemulsi. Kurkumin dalam mikroemulsi memiliki kestabilan yang lebih tinggi terhadap suhu, cahaya, dan pH dibandingkan kurkumin tanpa mikroemulsi.
<hr>
ABSTRAK
Curcumin which comes from turmeric can be used as natural dyes, but curcumin difficult to soluble in water and not stable with temperature and light. In this study, microemulsion ability has been tested to increase solubility of curcumin in water and improve its stability to the influence of temperature and light. Microemulsion was prepared with biosurfactant saponin from leaf extract of Ruellia tuberosa L., span 20 as cosurfactant, palm oil as oil phase, and water. Leaf extraction of Ruellia tuberosa L. has been done with maceration. Phytochemical analysis showed that there was saponins which contained in the water fraction, and was characterized with UV Vis spectrofotometer, and FTIR spectroscopy. The optimum formulation microemulsion was obtained with ratio of saponin with span 20 Sm 9 1 v v and ratio of Sm with palm oil 10 1 v v . The result of optic microscope showed that the type of microemulsion was oil in water O W microemulsion. Microemulsion has droplet size with range 5,615 15,69 nm by instrument particle size analyzer PSA . Curcumin solubilization increased from 0,0004 mg mL to 5,2 mg mL in microemulsion. Curcumin in microemulsion has a higher stability against temperature, light, and pH than curcumin without microemulsion.