ABSTRAK

Kurkumin digolongkan sebagai obat BCS kelas II karena memiliki kelarutan dalam air yang rendah sehingga bioavailibilitasnya rendah. Peningkatan disolusi obat-obatan yang kurang larut air penting dalam meningkatkan bioavailibilitas oral. Dispersi padat adalah salah satu cara untuk meningkatkan disolusi. Dalam penelitian ini dispersi padat dibuat dengan metode *solvent evaporation* dengan pembawa HPMC, dengan fomulasi ekstrak kunyit sebesar 10%, 20% dan 30% untuk melihat pengaruhnya terhadap disolusi kurkumin dibandingkan dengan campuran fisik. Pengukuran kadar kurkumin dilakukan dengan metode spektrofotometri.

Setelah dilakukan verifikasi metode analisis, metode terbukti akurat dan presisi dan didapatkan nilai r sebesar 0, 9981. Setelah itu, dilakukan uji *drug load*, uji kelarutan dan uji disolusi. Hasilnya, didapatkan semua dispersi padat (DP) memiliki persen terdisolusi lebih tinggi dari campuran fisik (CF), dengan nilai persen terdisolusi paling tinggi pada formulasi ekstrak 10%. Setelah nilai *dissolution efficiency* pada menit ke-180 (DE_{180}) didapatkan, lalu dibandingkan antara CF dan DP per masing-masing formulasi ekstrak, hasilnya ditemukan perbedaan signifikan dengan semua nilai P dibawah 0,05. Maka, DP terbukti dapat meningkatkan disolusi kurkumin dibandingkan dengan CF. Perbedaan signifikan juga ditemukan pada nilai DE_{180} antara DP 10%, 20% dan 30%. Maka, disimpulkan bahwa formulasi ekstrak kunyit dalam sistem dispersi padat berpengaruh terhadap disolusi kurkumin dengan disolusi akan meningkat seiring banyaknya jumlah pembawa.

Kata kunci: kurkumin, disolusi, dispersi padat, HPMC, formulasi ekstrak kunyit, spektrofotometri UV-Visibel

ABSTRACT

Curcumin is classified as a BCS class II drug because it has a low water solubility and poor bioavailibility. Dissolution improvement of less water-soluble drugs becomes essential to improve its' oral bioavailibility. Solid dispersion is one way to improve the dissolution rate. In this study, solid dispersions were prepared by solvent evaporation method with HPMC as the carrier, with turmeric extract formulations of 10%, 20% and 30% in the solid dispersions (SDs) to see the effect on the curcumin dissolution compared with physical mixtures (PMs). Curcumin content measurement was performed by spectrophotometric method.

Analysis method verification showed that the method was proved to be accurate and precise with r value obtained was 0, 9981 as compared to AOAC guidelines, then continued by drug load test, solubility test and dissolution test. As the result, all of SDs obtained higher dissolution percent compared with the PMs, with the highest value of dissolution percent at 10% turmeric extract formulation. After the value of dissolution efficiency at minute-180(DE_{180}) was obtained, then it was compared between the SDs' and PMs' per each formulation, the result showed that there were significant differences with all P values below 0,05. Thus, SD shown to increase the dissolution of curcumin compared with the PM. Significant differences were also found in DE_{180} values between 10%, 20% and 30% solid dispersions. So, it was concluded that turmeric extract formulation in solid dispersion system affects the dissolution of curcumin and the dissolution will increase as the increasing number of carriers.

Keywords: *curcumin, dissolution, solid dispersion, HPMC, turmeric extract formulation, spectrophotometric UV-visible*