PERBEDAAN PROFIL DISOLUSI KURKUMIN DALAM SISTEM DISERSI PADAT EKSTRAK KUNYIT (*Curcuma longa* Linn.)-INULIN DENGAN VARIASI *DRUG LOAD*

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ABSTRAK

Kurkumin termasuk dalam obat BCS kelas II, yaitu memiliki permeabilitas yang tinggi namun kelarutan yang rendah dalam air yang mengakibatkan bioavailabilitas oral kurkumin rendah. Salah satu upaya untuk meningkatkan disolusi kurkumin adalah dengan metode dispersi padat. Dispersi padat (DP) dibuat dengan metode *solvent evaporation* dengan pembawa inulin. DP dibuat dengan proporsi ekstrak sebesar 10%, 20% dan 30% untuk melihat pengaruhnya terhadap disolusi kurkumin dibandingkan dengan campuran fisik (CF). Pengukuran kadar kurkumin dilakukan dengan metode spektrofotometri visibel. Pada penelitian ini dilakukan uji *drug load*, uji kelarutan dan uji disolusi dari DP dan CF.

Berdasarkan hasil uji kelarutan, terbukti bahwa DP dapat meningkatkan kelarutan dibandingkan dengan CF. Pada uji disolusi, didapatkan hasil bahwa % terdisolusi DP lebih tinggi dibandingkan CF, dengan hasil paling besar pada DP 10% memiliki % terdisolusi sebesar 76,66%. Kemudian nilai DE_{180} pada CF dibandingkan dengan DP, begitupun dengan nilai DE_{180} antar formula DP. Hasilnya terdapat perbedaan signifikan dengan nilai $p < 0,05$, dimana DP 10% memiliki nilai DE_{180} paling besar, yaitu 50,20%. Maka, disimpulkan bahwa sistem dispersi padat ekstrak kunyit-inulin dengan berbagai variasi *drug load* memiliki profil disolusi yang berbeda-beda, dimana semakin tinggi *drug load* maka disolusi semakin menurun.

Kata kunci: kurkumin, disolusi, dispersi padat, inulin.

THE DIFFERENCES OF CURCUMIN DISSOLUTION PROFILE IN TUMERIC EXTRACT (Curcuma longa Linn.)-INULIN SOLID DISPERSION WITH VARIANCE OF DRUG LOAD

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ABSTRACT

Curcumin is classified into BCS class II, because it has a high permeability but low water solubility that makes curcumin has low oral bioavailability. One of the following ways to improve curcumin dissolution is solid dispersion method. Solid dispersion (SD) were prepared by solvent evaporation method, with inulin as a carrier. SD made with 10%, 20% and 30% extract propotion to observe curcumin's dissolution rate compared with physical mixture (PM). Curcumin content measurement was performed by spectrophotometric method. In this study, drug load test, solubility test and dissolution test were do to SD and PM.

The result showed on solubility test, SD was proved increase the solubility of curcumin compared to PM. On the dissolution test, the result showed that SD's dissolution percent higher than PM, with the highest dissolution percent is 76,66% on SD 10%. After that, DE_{180} were compared between SD and PM, and DE_{180} between SD formula were compared too. The result showed that there were significant differences with p value <0,05, which is SD 10% has the highest of DE_{180}, above 50,20%. The conclusion was tumeric extract-inulin solid dispersion system with variance of drug load was proved dissolution profile has differences in dissolution profil, where the drug load increased then the dissolution decreased.

Keywords: curcumin, dissolution, solid dispersion, inulin.