INTISARI

Temulawak (*Curcuma xanthorrhiza* Roxb.) secara empiris telah digunakan oleh masyarakat untuk mengobati berbagai penyakit. Temulawak memliki kandungan yang disebut dengan kurkuminoid yang terdiri dari kurkumin, demetoksikurkumin, dan *bis*-demetoksikurkumin. Kurkumin merupakan komponen terbesar dari kurkuminoid dan memiliki banyak efek farmakologi, seperti antioksidan, antiinflamasi, antimikrobia, antikanker. Kurkumin memiliki permasalahan dalam hal kelarutannya yang sangat rendah dalam air, hal ini membuat kurkumin tidak terdisolusi dan terabsorbsi sempurna sehingga menurunkan bioavailabilitas oral senyawa tersebut. Untuk meningkatkan kelarutan senyawa tersebut maka dibuat dispersi padat.

Penelitian ini bertujuan untuk mengetahui proporsi *drug load* terhadap profil disolusi dispersi padat ekstrak temulawak. Dispersi padat dibuat dengan campuran fisik kurkumin dengan senyawa pembawa yaitu *Polyvinyl Pyrolidon* (PVP) menggunakan metode pengupan pelarut atau *spray drying*. Dalam pembuatannya digunakan 3 formula dimana Formula 1 yang terdiri dari ekstrak temulawak : PVP (1:1), Formula 2 yang terdiri dari ekstrak temulawak : PVP (1:2), dan Formula 3 yang terdiri dari ekstrak temulawak : PVP (1:4). Uji disolusi menggunakan alat disolusi dalam medium buffer *phosphat*, kemudian diukur kadarnya menggunakan KLT-Densitometri. Kadar kurkumin terlarut dinyatakan sebagai persentase terdisolusi, dan dilanjutkan dengan perhitungan Disolusi Efisiensi (DE) untuk setiap formula. Nilai-nilai DE diuji statistik menggunakan *ANOVA* dan uji *t*.

Hasil dari uji disolusi menunjukkan perbedaan DE antar formula, yaitu pada Formula 3 menunjukkan DE paling tinggi kemudian diikuti Formula 2, dan yang paling kecil adalah Formula 1.

Kata Kunci : Temulawak, kurkumin, disolusi, bioavailabilitas, dispersi padat, *drug load*, PVP, *spray drying*, KLT-Densitometri, Disolusi Efisiensi.

ABSTRACT

Curcuma (*Curcuma xanthorrhiza* Roxb.) empirically has been used by people to treat various diseases. Curcuma has a content which is called curcuminoids; this content consists of curcumin, demetoxicurcumin, and *bis*demetoxicurcumin. Curcumin is the largest component of curcuminoids and it has many pharmacological effects; such as antioxidant, anti-inflammatory, antimicrobial, anticancer. Curcumin has a problem in terms of its low solubility in the water, it makes the curcumin cannot be dissolved and absorbed perfectly, therefore, it reduces the oral bioavailability of the compound. As a result, solid dispersion is made to improve the solubility of the compound.

This study aimed to determine the effect of the variation on dissolution profiles of curcuma extract solid dispersions. Solid dispersion was made by physical mixture of curcumin with the carrier compounds, Polyvinyl Pyrolidon (PVP), using evaporating solvent method or spray drying method. There were three formulas which were used in spray drying making process; 1st Formula was consisted of Curcuma extract: PVP (1:1), 2nd Formula was consisted of Curcuma extract: PVP (1:2), and 3rd Formula was consisted of curcuma extract: PVP (1:4). The dissolution test was used in phosphate medium buffer; thus, the curcumin level was measured using TLC-densitometry. The dissolved-curcumin solute level was considered as a dissolute percentage, and it was continued using the Dissolution Efficiency calculation (DE) for each formula. DE values were statistically tested using ANOVA and t test.

The dissolution test result showed some differences in each DE formula, the 3rd formula shows the highest DE, followed by the 2nd Formula, and the smallest is the 1st Formula.

Keywords : Curcumin, dissolution, bioavailability, solid dispersions, drug load, PVP, spray drying, TLC-densitometry, Dissolution Efficiency.