

ABSTRAK

Bengkuang (*Pachyrrhizus erosus*) mengandung daidzein yang berfungsi pro-estrogenik sehingga mampu menekan resorpsi tulang dengan mekanisme langsung pada reseptor estrogen di tulang. Bengkuang dapat dikembangkan menjadi sumber fitoestrogen yang bermanfaat sebagai suplemen pada wanita menopause. Penelitian ini bertujuan untuk mengetahui stabilitas dan pengaruh bahan pengisi Avicel[®] PH 101 dan bahan penghancur *crospovidone* terhadap sifat alir granul dan sifat fisik tablet ekstrak umbi bengkuang.

Ekstrak umbi bengkuang dibuat menjadi sediaan tablet dengan metode granulasi basah. Variasi komposisi *crospovidone* antara 2-5%, sedangkan Avicel[®] PH 101 antara 38,86-41,86%. Formulasi tablet dioptimasi dengan metode *Simplex Lattice Design*.

Hasil penelitian menunjukkan bahwa penambahan Avicel[®] PH 101 dapat meningkatkan indeks pengetapan, daya serap air, kadar air, kekerasan, waktu hancur, dan kerapuhan tablet, sedangkan *crospovidone* dapat meningkatkan indeks pengetapan, daya serap air, kadar air, kekerasan, waktu hancur, dan kerapuhan tablet. Interaksi Avicel[®] PH 101 dan *crospovidone* meningkatkan kadar air, menurunkan daya serap air, kekerasan, dan kerapuhan tablet. Formula optimum tablet memiliki komposisi Avicel[®] PH 101 sebanyak 293 mg dan *crospovidone* sebanyak 14 mg tiap tablet. Verifikasi hasil formula optimum dengan hasil SLD tidak berbeda signifikan terhadap respon indeks pengetapan, kadar air, kekerasan dan kerapuhan sedangkan pada respon waktu hancur berbeda signifikan dengan hasil percobaan. Penyimpanan formula optimum dalam suhu kamar (30°C±2 °C) selama empat minggu stabil dan tidak mempengaruhi bercak KLT antara sebelum penabletan dan sesudah penabletan.

Kata kunci: *Bengkuang, tablet, Avicel[®] PH 101, crospovidone*

ABSTRACT

Bengkuang (*Pachyrrhizus erosus*) contains daidzein that works pro-estrogenic to suppress bone resorption by direct mechanisms on bone estrogen receptors. Bengkuang can be developed into a useful source of phytoestrogens as a supplement in menopausal women. The aims of this study is to determine the stability and effect of Avicel® PH 101 as a filler and crospovidone as a disintegrant on granular flow properties and physical properties of bengkuang extract.

Bengkuang extracts were made into tablets by wet granulation method. Variations of crospovidone composition between 2-5%, while Avicel® PH 101 between 38.86 to 41.86%. The tablet formulation was optimized with the *Simplex Lattice Design* method.

The results showed the addition of Avicel® PH 101 could increase the tapping index, water absorption, moisture content, hardness, disintegration time, and friability of the tablet, while crospovidone could increase the tapping index, water absorption, moisture content, hardness, disintegration time, and friability of tablets. Avicel® PH 101 and crospovidone interactions could increase the moisture content, decrease the water absorption, hardness, and tablet friability. The optimum formula has a composition of 293 mg Avicel® PH 101 and 14 mg crospovidone per tablet. The result of verification optimum formula by SLD showed it was not different significantly to the response of the tapping index, hardness and tablet friability, while in response to the disintegration time was significantly different from the experimental results. Storage of the optimum formula at room temperature ($30^{\circ}\text{C} \pm 2^{\circ}\text{C}$) for four weeks was stable and was not affect the spotting of TLC between before tableting and after tableting.

Key words: *Bengkuang, tablet, Avicel® PH 101, crospovidone*