

ABSTRAK

Kaptopril merupakan senyawa aktif yang berfungsi sebagai *inhibitor Angiotensin Converting Enzym* (ACEI). Kaptopril stabil pada pH asam, tetapi seiring bertambahnya pH menjadi tidak stabil dan mengalami degradasi. Hal ini bisa mengganggu indeks terapeutik obat. Penelitian ini bertujuan untuk mengetahui pengaruh kombinasi matriks HPMC K100M dan *xanthan gum* terhadap sifat fisik granul, sifat fisik tablet mucoadhesive kaptopril serta mendapatkan komposisi optimum dari kedua matriks.

Tablet dibuat dengan metode granulasi basah menggunakan matriks HPMC K100M dan *xanthan gum* dengan berbagai konsentrasi. Formula tablet disusun menggunakan *software Design Expert 10.0.1* dengan program *Simplex Lattice Design*. Data yang diperoleh adalah sifat alir granul, kecepatan penyerapan medium oleh granul, bobot rata-rata, kekerasan, kerapuhan, *swelling index*, daya lekat *mucoadhesive*, dan profil disolusi. Verifikasi formula optimum dilakukan menggunakan *software IBM SPSS Statistics 25* dengan metode *one sampel t-test*.

Hasil penelitian menunjukkan bahwa peningkatan konsentrasi HPMC K100M akan meningkatkan daya lekat *mucoadhesive*. Peningkatan konsentrasi *xanthan gum* akan meningkatkan kecepatan alir, kecepatan penyerapan medium oleh granul, dan *swelling index*. Interaksi antar keduanya akan menurunkan kekerasan tablet, kerapuhan tablet, dan laju pelepasan kaptopril. Formula optimum tablet *mucoadhesive* kaptopril diperoleh dengan kombinasi *xanthan gum* sebanyak 40% b/b dan HPMC K100M sebanyak 10% b/b.

Kata Kunci : Kaptopril, HPMC K100M, *xanthan gum*, *mucoadhesive*

ABSTRACT

Captopril is an active compound that functions as an Angiotensin Converting Enzyme (ACEI) inhibitor. Captopril is stable at acidic pH, but as the pH increases it becomes unstable and degrades. This can disrupt the therapeutic index. The aim of this study was to determine the effect of the combination of HPMC K100M and xanthan gum matrices on the physical properties of granules, the physical properties of tablets mucoadhesive captopril and obtain optimum composition of the two matrices.

The tablet was made by wet granulation method using a matrix of HPMC K100M and xanthan gum with various concentrations. Formula tablets are prepared using Design Expert 10.0.1 software with the Simplex Lattice Design program. Data obtained were granul flow properties, medium absorption rate by granules, weight diversity, hardness, friability, swelling index, mucoadhesive adhesion, and dissolution profile. The optimum formula verification is done using IBM SPSS Statistics 25 software with the one sample t-test method.

The results showed that an increase in the concentration of HPMC K100M would increase mucoadhesive adhesion. Increasing the concentration of xanthan gum will increase the flow rate, the rate of absorption of the medium by granules, and swelling index. Interaction between the two will reduce tablet hardness, tablet fragility, and captopril release rate. The optimum formula for tablet captopril mucoadhesive was obtained with a combination of xanthan gum as much as 40% w/w and HPMC K100M 10% w/w.

Keywords : *Captopril, HPMC K100M, xanthan gum, mucoadhesive,*