

INTISARI

IMANNIA, R., 2014, OPTIMASI PROPORSI KOMBINASI MATRIKS HIDROKSIPROPIL METILSELULOSA K15M DAN XANTHAN GUM PADA TABLET LEPAS LAMBAT KAPTOPRIL DENGAN METODE *SIMPLEX LATTICE DESIGN*, SKRIPSI, FAKULTAS FARMASI, UNIVERSITAS SETIA BUDI, SURAKARTA.

Kaptopril sebagai inhibitor *angiotensin converting enzyme* (ACE) untuk pengobatan gagal jantung dan hipertensi. Kaptopril mudah larut dalam air, memiliki waktu paruh 2-3 jam, dosis sekali pakai 12,5-25 mg dua sampai tiga kali sehari, dosis maksimum 150 mg sehari, sehingga cocok untuk dibuat sediaan tablet lepas lambat. Tujuan penelitian ini adalah mengetahui pengaruh kombinasi matriks HPMC K15M dan *xanthan gum* pada tablet lepas lambat kaptopril terhadap mutu fisik granul dan profil disolusinya. Selain itu, penelitian ini untuk mengetahui proporsi optimum kombinasi matriks HPMC K15M dan *xanthan gum* pada tablet lepas lambat kaptopril.

Tablet dibuat dengan metode granulasi basah. Perbandingan matriks HPMC K15M (A) dan *xanthan gum* (B) terdapat pada 5 formula, yaitu: 100% A (F1), 75% A : 25% B (F2), 50% A : 50% B (F3), 25% A : 75% B (F4), 100% B (F5). Uji disolusi dilakukan dalam medium HCl 0,1N pada suhu $37 \pm 0,5^{\circ}\text{C}$ dengan kecepatan 50 rpm selama 6 jam menggunakan *paddle*. Titik kritis formula optimum tablet meliputi waktu alir, kerapuhan, Q_{60} , Q_{360} dan *Dissolution Efficiency* (DE_{360}) dianalisis dengan *Design Expert 8.0.6.1*.

Hasil yang diperoleh menunjukkan bahwa kombinasi matriks HPMC K15M dan *xanthan gum* berpengaruh terhadap sifat fisik granul, tablet, dan pelepasan obat. Interaksi antara HPMC K15M dan *xanthan gum* menurunkan kerapuhan tablet, menurunkan Q_{60} , menaikkan Q_{360} dan menaikkan *Dissolution Efficiency* (DE_{360}), serta tidak ada interaksi yang signifikan terhadap waktu alir. Formula optimum 25,47 % A dan 74,53 % B.

Kata kunci : kaptopril, HPMC K15M, *xanthan gum*, tablet lepas lambat.

ABSTRACT

IMANNIA, R., 2014, OPTIMIZATION OF PROPORTION COMBINATION HYDROXYPROPYL METHYLCELLULOSE K15M AND XANTHAN GUM AS MATRIX IN CAPTOPRIL SUSTAINED RELEASE TABLET USING SIMPLEX LATTICE DESIGN, THESIS, FACULTY OF PHARMACY, SETIA BUDI UNIVERSITY, SURAKARTA.

Captopril as an inhibitor of angiotensin converting enzyme (ACE) for heart failure and hypertension treatment. Captopril as water soluble drug, has a half-life of 2-3 hours, the daily dose 12.5-25 mg two to three times, the maximum dose of 150 mg a day, and suitable for sustained release dosage form. This study aimed to determine the effect of the combination of HPMC K15M and xanthan gum as matrix in captopril sustained release tablets of on the physical properties of the granules and dissolution profiles. In addition, this study aimed to finding out the optimum proportion of matrix combination of HPMC K15M and xanthan gum in captopril sustained release tablets.

Tablets were made by wet granulation method. Comparison matrix of HPMC K15M (A) and xanthan gum (B) present in the formula 5, there are : 100 % (A) (F1), 75 % (A) : 25 % (B) (F2), 50 % (A) : 50 % (B) (F3), 25 % (A) : 75 % (B) (F4), 100 % (B) (F5). Dissolution test was performed in 0.1 N HCl medium at $37 \pm 0.5^\circ\text{C}$ with a speed of 50 rpm for 6 hours using a paddle. Flow time, friability, Q_{60} , Q_{360} and dissolution efficiency (DE_{360}) were computed with software Design Expert 8.0.6.1.

The results showed that the combination of HPMC K15M and xanthan gum as matrix affected the physical properties of granules, tablets and drug release. The interaction of HPMC K15M and xanthan gum reduced friability, reduced Q_{60} , increase Q_{360} and increase DE_{360} . HPMC K15M and xanthan gum has not significant interaction in flow time. The optimum formula 25,47% A dan 74,53% B.

Keywords : captopril , HPMC K15M , xanthan gum , sustained release tablets.