

ABSTRAK

Latar Belakang: Hipertensi merupakan salah satu penyakit yang umum diderita oleh masyarakat. Salah satu obat antihipertensi adalah ramipril dengan bioavailabilitas dan kelarutan yang rendah. Upaya penanggulangan bioavailabilitas dan kelarutan yang rendah ini adalah dengan membuat sediaan tablet *floating* kombinasi polimer HPMC dan XG.

Tujuan: Untuk mengetahui pengaruh kombinasi polimer HPMC dan XG terhadap sifat fisik dan hasil disolusi sediaan tablet *floating* ramipril.

Metode: Dilakukan formulasi dan optimasi sediaan dengan kombinasi polimer HPMC:XG FI (60:190); FII (157,5:92,5); FIII (92,5:157,5); FIV (190:60); FV (190:60); FVI (190:60); FVII (125:125); FVIII (60:190). Diuji sifat fisik tablet (organoleptis, kekerasan, kerapuhan, keseragaman kandungan, keseragaman ukuran, *swelling index*, *floating lag time*, dan total waktu *floating*), dan uji disolusi pada formula optimum. Hasil dianalisis secara statistik dengan metode *t-test* dan ANOVA.

Hasil: Sifat fisik dan karakteristik *floating* setiap formula memenuhi persyaratan uji. Pengujian secara statistik pada hasil optimasi menunjukkan kombinasi polimer HPMC dan XG berpengaruh terhadap sifat fisik tablet *floating*. Hasil uji disolusi menunjukkan pelepasan zat aktif belum maksimal.

Kesimpulan: Kombinasi polimer formula optimum tablet *floating* ramipril adalah HPMC sebesar 101,313 mg dan XG 148,687 mg. Hasil pengujian disolusi tablet *floating* ramipril formula optimum selama 12 jam adalah 13,63%.

Kata Kunci: Disolusi, formulasi, optimasi, ramipril, tablet *floating*

ABSTRACT

Background: Hypertension is one of the common diseases suffered by the community. One of the antihypertensive drugs is ramipril with low bioavailability and solubility. The effort to overcome this low bioavailability and solubility is to make floating tablet with a combination of HPMC polymer and xanthan gum.

Aim: To determine the effect of the combination of polymer HPMC and xanthan gum on the physical properties and dissolution results of ramipril floating tablet.

Methods: Formulation and optimization of floating tablet with a combination of HPMC polymer: xanthan gum are FI (60:190); FII (157,5:92,5); FIII (92,5:157,5); FIV (190:60); FV (190:60); FVI (190:60); FVII (125:125); FVIII (60:190). The physical properties of the tablets were tested (organoleptic, hardness, friability, content uniformity, size uniformity, swelling index, floating lag time, and total floating time), and dissolution tests on the optimum formula. The results were statistically analyzed using the t-test and ANOVA methods.

Result: The physical properties and floating characteristics of each formula meet the test requirements. Statistical testing of the optimization results shows that the combination of HPMC and XG polymers affects the physical properties of floating tablets. However, the dissolution test results showed that the release of the active substance was not optimal.

Conclusion: The optimum polymer formula combination for ramipril floating tablets is HPMC of 101.313 mg and XG of 148.687 mg. The dissolution test results for the optimum formulation of floating ramipril tablets for 12 hours were 13.63%.

Key Work: Dissolution, floating tablet, formulation, optimization, ramipril