

## INTISARI

Salbutamol sulfat merupakan obat yang banyak digunakan sebagai terapi asma dan penyakit pulmonari obstruktif kronis (PPOK). Tempat absorpsi salbutamol sulfat spesifik di lambung dan usus halus bagian atas. Waktu paro eliminasi salbutamol sulfat relatif pendek (4-6 jam). Penelitian ini bertujuan untuk mengidentifikasi pengaruh kombinasi matriks HPMC K100M dan etil selulosa terhadap sifat alir granul, daya serap granul dan sifat tablet mukoadhesif salbutamol sulfat serta mendapatkan komposisi optimum dari kedua matriks tersebut.

Tablet dibuat dengan metode granulasi basah. Data yang diperoleh adalah sifat alir granul, daya serap granul serta data uji sifat tablet yang meliputi keragaman bobot, kekerasan, kerapuhan, *swelling index*, daya lekat mukoadhesif, dan disolusi. Formula optimum didapatkan dengan menganalisis data hasil uji menggunakan *software Design Expert* metode *Simplex Lattice Design*. Verifikasi formula optimum dilakukan menggunakan *software IBM SPSS Statistics 23* dengan metode analisis *one-sample t-test*.

Hasil penelitian menunjukkan bahwa peningkatan konsentrasi HPMC K100M akan meningkatkan indeks pengetapan, sudut diam, kecepatan penyerapan medium oleh granul, kerapuhan tablet dan *swelling index*, serta menurunkan kecepatan alir granul, kekerasan tablet, daya lekat mukoadhesif dan laju pelepasan obat. Peningkatan konsentrasi etil selulosa akan meningkatkan kecepatan alir granul, kekerasan tablet, daya lekat mukoadhesif, dan laju pelepasan obat, serta menurunkan indeks pengetapan, sudut diam, kecepatan penyerapan medium oleh granul, kerapuhan tablet dan *swelling index*. Interaksi dari kedua matriks dapat meningkatkan kekerasan tablet dan daya lekat mukoadhesif, serta menurunkan *swelling index*. Formula optimum tablet mukoadhesif salbutamol sulfat diperoleh dengan kombinasi HPMC K100M 123,51 mg (49,40% b/b) dan etil selulosa 26,49 mg (10,60% b/b).

**Kata Kunci:** salbutamol sulfat, HPMC K100M, etil selulosa, mukoadhesif

## **ABSTRACT**

*Salbutamol sulfate widely used as a therapy for asthma and chronic obstructive pulmonary disease (COPD). Salbutamol sulfate has specific absorption site in the upper stomach and small intestine. The half-life of salbutamol sulfate is relatively short (4-6 hours). This study aims to identify the effect of matrix combinations of HPMC K100M and ethyl cellulose on the flow properties of granules, granule absorption and the properties of salbutamol sulfate mucoadhesive tablets and obtain the optimum composition of the two matrix.*

*Tablets were prepared by wet granulation method. The data obtained are granule flow properties, granule absorption and tablet properties test data which include weight variation, hardness, friability, swelling index, mucoadhesive strength and dissolution. The optimum formula was obtained by analyzing the test data using the Design Expert software with Simplex Lattice Design method. The optimum formula verification was performed using IBM SPSS Statistics 23 software with one-sample t-test analysis method.*

*The results showed that an increase in HPMC K100M concentration would increase the tapping index, angle of repose, medium absorption rate by granules, tablet friability and swelling index, and reduce the flow rate of granules, tablets hardness, mucoadhesive strength and drug release rate. The increase in ethyl cellulose concentration will increase flow rate of granules, tablet hardness, mucoadhesive strength, and drug release rate, and decrease the tapping index, angle of repose, medium absorption rate by granule, tablet friability and swelling index. Interactions of the two matrix can increase tablet hardness and mucoadhesive strength, and reduce swelling index. The optimum formula for mucoadhesive tablet of salbutamol sulfate was obtained with the combination of HPMC K100M 123.51 mg (49.40% w/w) and ethyl cellulose 26.49 mg (10.60% w/w).*

**Keywords:** *salbutamol sulfate, HPMC K100M, ethyl cellulose, mucoadhesive*