OPTIMASI FORMULA *ORAL DISSOLVING FILM* SALBUTAMOL SULFAT DENGAN POLIMER HPMC DAN *PLASTICIZER* GLISEROL

INTISARI

Senyawa salbutamol sulfat merupakan obat yang meringankan kejang otot bronkus, sediaan tablet salbutamol oral yang beredar saat ini memiliki kelemahan mengalami *first pass metabolism* yang menurunkan bioavailabilitas obat. Maka salbutamol sulfat diformulasikan sebagai *orally dissolving film* karena mudah hancur di mulut, mudah digunakan, dan tidak mengalami *first pass metabolism.*

Sediaan *orally dissolving film* dengan polimer HPMC dan *plasticizer* gliserol diformulasikan dengan metode *solvent casting*. HPMC merupakan polimer pembentuk *film* yang transparan, kuat, dan fleksibel. *Plasticizer* gliserol merupakan *plasticizer* yang efektif meningkatkan elastisitas. Kombinasi keduanya diprediksi menghasilkan sifat fisik film yang baik. Konsentrasi HPMC yang digunakan rentang 40-60% dan konsentrasi gliserol yang digunakan rentang 15-30%. Penentuan formula optimum *orally dissolving film* dengan metode *Simplex Lattice Design* (SLD).

Hasil formula optimum memberikan hasil signifikan untuk perbedaan kombinasi pada parameter waktu pembasahan, ketebalan, *loss on drying,* kuat tarik, dan elongasi. Formula optimum yang diperoleh yaitu 39,398 mg HPMC dan 10,602 mg gliserol, memberikan hasil ketebalan 0,083 mm, waktu pembasahan 14,712 detik, *loss on drying* 27,68%, kuat tarik 7,311 MPa, dan elongasi 2,454%. Kombinasi keduanya memberikan hasil uji fisik yang baik, parameter kuat tarik dan ketebalan meningkat seiring peningkatkan konsentrasi HPMC. Parameter waktu pembasahan, *loss on drying*, dan elongasi meningkat seiring peningkatan konsentrasi gliserol.

Kata kunci: *oral dissolving film,* salbutamol sulfat, HPMC, gliserol.

FORMULA OPTIMIZATION *ORAL DISSOLVING* SALBUTAMOL SULFATE *FILM* WITH HPMC AS POLYMER AND GLYCEROL AS *PLASTICIZER*

ABSTRACT

Salbutamol sulfate compound is a drug that relieves bronchial muscle spasms, oral salbutamol tablet currently circulating have the disadvantage of experiencing first pass metabolism which decreases drug bioavailability. Then salbutamol sulfate is formulated as orally dissolving film because it is easily destroyed in the mouth, easy to use, and does not experience first pass metabolism.

Orally dissolving films with HPMC polymers and glycerol plasticizers are formulated solvent casting methods. HPMC is a film forming polymer that is transparent, strong, and flexible. Plasticizer glycerol is a plasticizer that effectively increases elasticity. The combination of both is predicted to produce good physical properties of the film. The concentration of HPMC used ranges from 40-60% and the concentration of glycerol used ranges from 15-30%. Determination of optimum orally dissolving film formula using the Simplex Lattice Design (SLD) method.

The optimum formula results give significant results for different combinations of wetting time parameter, thickness, loss on drying, tensile strength, and elongation. The optimum formula obtained was 39,398 mg HPMC and 10,602 mg glycerol, giving a thickness of 0,083 mm, wetting time 14,712 seconds, loss on drying 27,68%, tensile strength 7,311 MPa, and elongation of 2,454%. The combination of both gives good physical test results, tensile strength and thickness parameters increase with increasing HPMC concentration. Wetting time parameter, loss on drying, and elongation increased with increasing glycerol concentration.

Keywords: *oral dissolving film,* salbutamol sulfate, HPMC, glycerol.