# ABSTRAK

Levofloksasin adalah antibiotik golongan fluorokuinolon berspektrum luas. Salah satu penggunaan antibiotik levofloksasin adalah untuk eradikasi *Helicobacter pylori* yang berkoloni di mukosa lambung. Penelitian ini bertujuan untuk 1) mengidentifikasi pengaruh proporsi matriks terhadap sifat fisik tablet dan 2) mendapatkan formula optimum tablet gastroretentif *mucoadhesive* levofloksasin.

Tablet dibuat dengan metode granulasi basah menggunakan kombinasi matriks HPMC K100M dan *xanthan gum*. Formula tablet dirancang berdasarkan program *Simplex Lattice Design* menggunakan *software Design Expert*®11 untuk mendapatkan formula optimum. Evaluasi sifat fisik tablet meliputi keragaman bobot, penetapan kadar, kekerasan, kerapuhan, *swelling index,* kekuatan *mucoadhesive*, dan uji disolusi. Verifikasi formula optimum dilakukan dengan *software* IBM SPSS *Statistics* 25 menggunakan analisis *one sample t-test*.

Hasil penelitian menunjukkan bahwa variasi proporsi HPMC K100M dan *xanthan gum* berpengaruh signifikan terhadap kekerasan, kerapuhan, *swelling index*, kekuatan *mucoadhesive*, dan karakteristik disolusi tablet (p-*value* <0,05). Kombinasi keduanya akan meningkatkan kekuatan *mucoadhesive* dan menghambat pelepasan obat. Formula optimum diperoleh dengan proporsi matriks HPMC K100M sebesar 18,67% b/b dan *xanthan gum* sebesar 31,33% b/b.

**Kata kunci : levofloksasin, *mucoadhesive*, *xanthan gum*, HPMC K100M.**

# *ABSTRACT*

Levofloxacin is a broad-spectrum fluoroquinolone antibiotic. One of its use is to help the eradication of Helicobacter pylori which colonizes in gastric mucosa. This study aims to 1) identify the influence of the matrix proportion on tablet's physical properties and 2) obtain an optimum formula of gastroretentive mucoadhesive levoflokxacin tablet.

The tablet was made by wet granulation method using HPMC K100M and xanthan gum in various concentrations as gastroretentive mucoadhesive matrix. All formulas were designed based on Simplex Lattice Design method using Design Expert®11, to obtain the optimum formula. Evaluation of the physical properties of tablets included weight diversity, content determination, hardness, friability, swelling index, mucoadhesive strength, and dissolution test. The optimum formula verification was done by IBM SPSS Statistics 25 using one sample t-test analysis.

The results showed that variation in the amount of HPMC K100M and xanthan gum significantly influence tablet's hardness, friability, swelling index, mucoadhesive strength, and drug dissolution characteristics (p-value <0.05). Combination of both matrices would increase mucoadhesion strength and inhibit drug release. The optimum formula was obtained from a combination of 18.67% b/b of HPMC K100M and 31.33% b/b of xanthan gum.

**Keywords:** Levofloxacin, mucoadhesive, xanthan gum, HPMC K100M.