

ABSTRAK

Kalium diklofenak banyak digunakan dalam terapi periodontitis. Sediaan kalium diklofenak yang saat ini tersedia masih memiliki kelemahan yaitu menyulitkan pasien yang susah menelan dan kurang praktis dalam pemakaian. Sediaan *orally dissolving film* kalium diklofenak diharapkan dapat meningkatkan kepatuhan pasien dengan penggunaan yang lebih praktis. Salah satu komponen penting dalam *orally dissolving film* kalium diklofenak adalah *plasticizer*. Penelitian ini bertujuan untuk mengoptimasi sediaan *orally dissolving film* dengan polietilen glikol 1000 dan gliserin sebagai *plasticizer*.

Sediaan *orally dissolving film* kalium diklofenak dibuat dengan teknik *solvent casting method* dengan pelarut akuades. Sediaan diuji karakteristiknya meliputi *swelling time*, fleksibilitas, *moisture content*, dan ketebalan. Respon tiap karakteristik dianalisis kemudian dioptimasi dengan metode *simplex lattice design* menggunakan *software Design Expert*. Formula optimum yang diperoleh diverifikasi dengan membandingkan hasil uji sifat fisik *orally dissolving film* formula optimum yang dibuat dengan prediksi perangkat lunak *Design Expert* menggunakan uji t (*one sample t-test*) dengan nilai $p=0,05$.

Hasil penelitian menunjukkan penggunaan kombinasi polietilen glikol 1000 dan gliserin sebagai *plasticizer* mempercepat *swelling time*, meningkatkan fleksibilitas dan ketebalan, serta tidak mempengaruhi *moisture content* film secara signifikan. Formula optimum *orally dissolving film* kalium diklofenak yang memberikan karakteristik paling baik yaitu pada kombinasi *plasticizer* PEG 1000 5,20% dan gliserin 4,80%.

Kata kunci: kalium diklofenak, orally dissolving film, polietilen glikol 1000, gliserin

ABSTRACT

Diclofenac potassium is widely used in periodontitis therapy. The potassium diclofenac preparation that is currently available still has a weakness, which is difficult for patients who have difficulty swallowing and are less practical in using it. Diclofenac potassium orally dissolving films are expected to improve patient compliance with more practical use. One important component in diclofenac potassium orally dissolving films is plasticizers. This study is intended to optimize orally dissolving film preparations with polyethylene glycol 1000 and glycerin as plasticizers.

Diclofenac potassium orally dissolving film preparation was made by solvent casting method with distilled water solvent. The preparations were tested for their characteristics including disintegration time, flexibility, moisture content, and thickness. The response of each characteristic was analyzed then optimized by the simplex lattice design method using a software Design Expert. The optimum formula obtained was verified by comparing the results of the test of the physical properties of the optimum formula made with the prediction of the Design Expert software using the t sample (one sample t-test) in p value= 0,05.

The results showed that the use of a combination of polyethylene glycol 1000 and glycerin as a plasticizer accelerated the disintegration time, increased flexibility and thickness, and did not significantly affect the moisture content of the film. The optimum formula composition of orally dissolving film diclofenac potassium provides the best characteristics is in the composition of PEG 1000 plasticizer 5,20% and glycerin 4,80%.

Keywords: diclofenac potassium, orally dissolving film, polyethylene glycol 1000, glycerin