

## INTISARI

**IMANINGTYAS, RD., 2016, OPTIMASI FORMULA FDT NIFEDIPIN YANG TERDISPERSI PEG 6000 MENGGUNAKAN KOMBINASI SUPERDISINTEGRANT EXPLATAB DAN KOMPONEN EFFERVESCENT DENGAN METODE FACTORIAL DESIGN, SKRIPSI, FAKULTAS FARMASI, UNIVERSITAS SETIA BUDI, SURAKARTA.**

Nifedipin sebagai antagonis kalsium digunakan untuk terapi hipertensi. Nifedipin sukar larut dalam air sehingga termasuk dalam BCS klas 2. Nifedipin didispersi dengan PEG 6000 untuk meningkatkan kelarutan. Nifedipin yang terdispersi PEG 6000 dibuat dalam sediaan *fast disintegrating tablet* (FDT) yang dapat hancur dengan cepat dalam rongga mulut tanpa membutuhkan air dan dapat memberikan efek yang cepat. Penelitian ini bertujuan untuk mengoptimasi pengaruh kombinasi *explotab* dan komponen *effervescent* terhadap sifat fisik tablet dan pelepasan obat dengan metode *factorial design*.

Metode *factorial design* digunakan untuk mengoptimasi tablet dengan faktor *explotab* dan komponen *effervescent*. Tablet dibuat dengan metode kempa langsung dan dilakukan pengujian terhadap sifat fisik serbuk, tablet dan pelepasan obat. Daerah optimum ditentukan dengan *superimposed contour plot* menggunakan software *Design Expert 8.0.6 trial version* berdasarkan parameter kekerasan, kerapuhan, waktu hancur *in-vitro*, waktu hancur *in-vivo*, waktu pembasahan, jumlah obat yang terlepas selama 1 menit, *Dissolution efficiency* 30 menit.

Faktor *explotab* berpengaruh lebih dominan meningkatkan kekerasan, waktu hancur *in-vitro* serta pelepasan obat dibandingkan komponen *effervescent*. Interaksi antara *explotab* dan komponen *effervescent* dapat meningkatkan kekerasan, waktu hancur *in-vitro*, dan waktu pembasahan. Berdasarkan *superimposed contour plot* diperoleh formula optimum tablet FDT nifedipin dengan kombinasi *explotab* 16 mg dan komponen *effervescent* 15,52 mg yang memberikan efek kemanisan sedang.

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Kata kunci : FDT nifedipin yang terdispersi PEG 6000, *explotab*, komponen *effervescent*, *factorial design*.

## ABSTRACT

**IMANINGTYAS, RD., 2016 OPTIMIZATION OF FORMULA FDT NIFEDIPINE DISPERSED PEG 6000 USING A COMBINATION SUPERDISINTEGRANT EXPLOTAB AND EFFERVESCENT COMPONENTS BY FACTORIAL DESIGN METHOD, UNDERGRADUATE THESIS, FACULTY OF PHARMACY, UNIVERSITAS SETIA BUDI, SURAKARTA.**

Nifedipine as a calcium antagonist used for hypertension therapy. Nifedipine is a drug that is poorly soluble in water and is a class of drugs known as BCS 2. Nifedipine dispersed with PEG 6000 to increase the solubility. Nifedipine that dispersed PEG 6000 were made in the preparation of fast-disintegrating tablet (FDT) which can disintegrate quickly in the mouth without water and can provide immediate effect. This research aims to optimize effect of the combination explotab and effervescent component of physical tablet properties and drug release by factorial design method.

Factorial design method is used to optimize tablets with explotab factors and effervescent component. Tablets made by direct compression method and tested physical properties of powders and tablets and drug release. Optimum area determined by superimposed contour plot using Design Expert 8.0.6 trial version software based on parameters hardness, friability, disintegration time in-vitro, in-vivo disintegration time, wetting time, the amount of drug released for 1 minute, 30 minutes Dissolution efficiency.

Factors explotab give more dominant effect on increasing hardness, disintegration time and the in-vitro drug release compared of effervescent component. Interaction between explotab and effervescent component can increase hardness, disintegration time in-vitro, and wetting time. Based on superimposed contour plots obtained nifedipine FDT tablet formulation by combination explotab 16 mg and effervescent component 15,52 mg, which provides medium sweetness effect.

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Keywords: FDT nifedipine that has been dispersed PEG 6000, explotab, effervescent component, factorial design.