

SKRIPSI SARJANA FARMASI
**FORMULASI *FAST DISSOLVING TABLET* KOKRISTAL PIPERIN-
ASAM SUKSINAT**



Oleh :

KEVIN AIDIL AKBAR
NIM: 1811012004

Dosen Pembimbing

1. Prof. Dr. apt. Erizal Zaini, M.Si
2. apt. Lili Fitriani, S.Si, M.Pharm.Sc

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UNIVERSITAS ANDALAS
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ABSTRAK

FORMULASI *FAST DISSOLVING TABLET* KOKRISTAL PIPERIN- ASAM SUKSINAT

Oleh:

KEVIN AIDIL AKBAR
NIM: 1811012004
(Program Studi Sarjana Farmasi)

Seiring dengan perkembangan zaman, piperin yang merupakan metabolit sekunder utama golongan alkaloid pada famili piperaceae, terutama dari *Piper nigrum* L., sedang dikembangkan menjadi salah satu nutrasetikal yang memiliki banyak manfaat. Namun, piperin termasuk ke dalam sistem klasifikasi biofarmasetika kelas II yang memiliki kelarutan yang rendah dalam air dan menyebabkan laju disolusi juga rendah sehingga sulit dikembangkan menjadi sediaan obat. Tujuan penelitian ini yaitu untuk membentuk sediaan *fast dissolving tablet* kokristal piperin-asam suksinat sebagai salah satu nutrasetikal dengan konsentrasi *superdisintegrant* optimal yang dapat meningkatkan laju disolusi piperin. Kokristal piperin-asam suksinat dibuat terlebih dahulu dengan metode *slurry* dan dilanjutkan dengan proses pembuatan *fast dissolving tablet* kokristal piperin-asam suksinat dengan metode kempa langsung yang diformulasi dengan perbedaan konsentrasi *croscarmellose sodium* sebagai *superdisintegrant* yaitu konsentrasi 1% (F1) ; 2,5% (F2) dan 5% (F3) sehingga diperoleh formula optimal. Optimasi formula dilakukan dengan evaluasi waktu hancur pada ketiga formula menggunakan alat uji waktu hancur dan medium air suling. Evaluasi *fast dissolving tablet* kokristal piperin-asam suksinat terdiri atas sifat fisik, uji disolusi, uji waktu terbasahi dan rasio penyerapan air. Hasil optimasi formula didapatkan konsentrasi 2,5% (F2) yang memiliki waktu hancur optimal selama 27,27 detik. Kadar piperin terdisolusi pada menit ke-60 yaitu 22,08% dengan peningkatan laju disolusi sebesar 2,75 kali dibandingkan piperin murni. Rasio penyerapan air didapatkan sebesar 41,64% dengan waktu terbasahi selama 5,04 detik. Dari penelitian ini dapat disimpulkan, pembentukan *fast dissolving tablet* kokristal piperin-asam suksinat dapat meningkatkan laju disolusi piperin.

Kata kunci: piperin, asam suksinat, *fast dissolving tablet*, uji waktu hancur, laju disolusi

ABSTRACT

FORMULATION OF FAST DISSOLVING TABLET PIPERINE-SUCCINIC ACID COCRYSTAL

By:

KEVIN AIDIL AKBAR
Student ID Number : 1811012004
(Bachelor of Pharmacy)

Along with the times, piperine which is the main secondary metabolite of the alkaloid group in the piperaceae family, especially from *Piper nigrum* L., is being developed into a nutraceutical that has many benefits. However, piperine included in the class II of biopharmaceutical classification system which has low solubility in water and causes a low dissolution rate, making it difficult to develop into drug dosage form. The objectives of this study was to form a fast dissolving tablet of piperine-succinic acid cocrystal as a nutraceutical with an optimal superdisintegrant concentration which hypothesized could increase dissolution rate of piperine. Piperine-succinic acid cocrystals were prepared first by the slurry method and followed by the process of making fast dissolving tablet piperine-succinic acid cocrystal by direct compression method which were formulated with different concentrations of croscarmellose sodium as a superdisintegrant consisting of a concentration of 1% (F1) ; 2.5% (F2) and 5% (F3) in order to obtain the optimal formula. Formula optimization was carried out by evaluating the disintegration time of the three formulas using disintegration time test and distilled water medium. Tablet was evaluated such as physical characteristic, dissolution test, wetting time and water absorption ratio. The results of the optimization of the formula obtained a concentration of 2.5% (F2) which has an optimal disintegration time of 27.27 seconds. The dissolution rate of piperine in the 60 minute was found to be 22.08% with an increase in the dissolution rate of 2.75-fold compared to intact piperine. The water absorption ratio was obtained at 41.64% with a wetted time of 5.04 seconds. From this research, it can be concluded that the formation of fast dissolving tablet piperine-succinic acid cocrystal can increase dissolution rate of piperine.

Keyword: piperine, succinic acid, fast dissolving tablet, disintegration test, dissolution rate