Aplikasi protein kedelai tersuksinilasi sebagai matriks pada tablet mengapung = Application of succinylated soybean protein as matrix in floating tablet

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Abstrak

[ABSTRAK
Tujuan penelitian ini adalah membuat protein kedelai suksinat dari protein kedelai yang diperoleh melalui proses suksinilasi protein kedelai dengan anhidrida suksinat pada kondisi basa dalam medium berair. Protein kedelai suksinat yang diperoleh kemudian dikarakterisasi secara fisik, kimia, dan fungsional, kemudian digunakan sebagai matriks pada sediaan tablet mengapung. Protein kedelai suksinat yang didapat berupa serbuk berwarna putih kekuningan, memiliki derajat suksinilasi 35,74 ± 0,38% dan 100,38 ± 0,38%, menunjukkan peak pada bilangan gelombang 1653,0 cm-1 mengindikasikan gugus karbonil amida yang terbentuk, memiliki daya mengembang 35,38 ± 2,08% dan 25,30 ± 4,99% dalam dapar asam klorida pH 1,2. Pada penelitian ini, tablet dibuat dengan metode granulasi basah dan menggunakan diltiazem hidroklorida sebagai model obat. Semua formula dibuat dengan mengkombinasikan matriks protein kedelai (PK), protein kedelai suksinat 100% b/b (PKS 1), dan protein kedelai suksinat 250% b/b (PKS 2) dengan HPMC dengan perbandingan 1:1. Uji keterapungan, daya mengembang dan kinetika pelepasan obat pada tablet mengapung dievaluasi. Hasil penelitian menunjukkan bahwa formula dengan matriks PKS 2:HPMC 1:1 merupakan fomula terbaikdengan waktu apung 40,75 ± 1,06 menit dan mampu mengapung selama 24 jam, daya mengembang 87,5 ± 3,1% dengan kinetika pelepasan mengikuti persamaan Higuchi dan mekanisme difusi non-Fickian.
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ABSTRACT
The aims of this study was to produce the soybean protein succinate from soybean protein by succinilation of the soybean protein using succinic anhydride under alkaline conditions in aqueous medium. Soybean protein succinate were characterized physically, chemically and functionally, then was used as a matrix for floating tablet. Soybean protein succinate obtained a yellowish-white powder, having 35.74 ± 0.38% and 100.38 ± 0.38% as its succinylated degree, showed peak at the wave number 1653.05 cm-1 indicates that the amide carbonyl group is formed, swelling index was 35.38 ± 2.08% and 25.30 ± 4.99% in hydrocloric acid buffer pH 1.2.Tablets were made by wet granulation method and diltiazem hydrochloride was used as a model drug. All formulas were made by combining matrix soybean protein (SP), soybean protein succinate 100 % w/w (SPS 1), and soybean protein succinate 250 % w/w (SPS 2) with HPMC 1:1. Buoyancy test, swelling test and drug-release kinetics evaluated on the floating tablet. The results showed that the formula with SPS 2: HPMC 1:1 is the best fomula with a lag time of 40.75 ± 1.06 minutes, floating duration of 24 hours, and swelling test 87.5 ± 3.1%. This formula followed Higuchi release kineticsand showed non-Fickian diffusion mechanism., The aims of this study was to produce the soybean protein succinate from soybean protein by succinilation of the soybean protein using succinic anhydride under alkaline conditions in aqueous medium. Soybean protein succinate were characterized physically, chemically and functionally,

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