Pembuatan dan karakterisasi protein kedelai tersuksinilasi sebagai matriks pada mikrosfer lepas lambat propanolol hidroklorida = Preparation and characterization of succinylated soybean protein as matrix for sustained release microspheres containing propranolol hydrochloride/ Lutfi Abdul Karim, Author

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Abstrak

ABSTRAK
Protein kedelai tersuksinilasi merupakan protein kedelai yang termodifikasi secara kimia dan berpotensi dimanfaatkan sebagai pembentuk matriks mikrosfer. Protein kedelai disuksinilasi dengan suksinat anhidrida 100% b/b dalam suasana basa. Protein kedelai tersuksinilasi yang diperoleh memiliki derajat suksinilasi 35,74±0,38%, menunjukkan peak pada bilangan gelombang 1653 cm-1 mengindikasikan gugus karbonil amida yang terbentuk, memiliki nilai uji daya larut pada pH 1,2 sebesar 0,21±0,010 gram/100 ml dan pada pH 7,5 sebesar 0,35±0,003 gram/100 ml, serta memiliki kemampuan mengembang pada pH 1,2 sebesar 33,21±2,04% dan pada pH 7,5 sebesar 66,36±2,12%. Mikrosfer lepas lambat propranolol hidroklorida dibuat dengan eksipien konsentrat protein kedelai dan protein kedelai tersuksinilasi sebagai matriks menggunakan alat spray dryer dan dihasilkan mikrosfer dengan ukuran partikel 11,54-16,79 µm, nilai presentase rendemen 36,46-58,91%, dan nilai efisiensi penjerapan 95,75-99,81%. Formula 2 menahan pelepasan obat paling baik dalam medium pH 1,2 dengan nilai pelepasan obat kumulatif 14,44±0,10% selama 1 jam dan 63,05±0,40% jika dilanjutkan dalam medium pH 7,5 hingga jam ke-12.
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ABSTRACT
Succinylated soybean protein was chemically-modified soybean protein that could be used as matrix for sustained release microspheres containing propranolol hydrochloride. Soybean protein was succinylated with anhydride succinic 100% w/w in basic condition. Succinylated soybean protein had degree of succinylation 35.74±0.38%, showed peak in wave numbers 1653 cm-1 on IR spectrum which was indicating formed amide carbonyl group, had solubility index 0.21±0.010 gram/100 ml in aqueous medium pH 1.2 and 0.35±0.003 gram/100 ml in aqueous medium pH 7.5, and had swelling index 33.21±2.04% in aqueous medium pH 1.2 and 66.36±2.12% in aqueous medium pH 7.5. Sustained release microspheres containing propranolol hydrochloride were made by using spray dryer and obtained microspheres had particle diameters 11.54-16.79 µm, had yield values 36.46-58.91%, and had encapsulation efficiency values 95.75-99.81%. Second formula was the best formula that could sustain drug release in the aqueous medium pH 1.2 with the value of cumulative drug release 14.44±0.10% for 1 hour and 63.05±0.40% if it was continued in aqueous medium pH 7.5 up to 12 hours.