Formulasi beads tetrandrine menggunakan metode gelasi ionik ca-alginat tersalut hidroksipropilmetil selulosa ftalat atau selulosa asetat ftalat sebagai sediaan kolon tetarget = Formulation of tetrandrine beads using ionic gelation method ca alginate coated hydroxypropylmethyl cellulose phthalate or cellulose acetate phthalate as colon targeted dosage form

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Abstrak

Sistem penghantaran obat ke kolon banyak digunakan untuk memfasilitasi zat aktif terlepas dan memberikan efek terapi pada kolon. Salah satu penyakit yang dapat disembuhkan dengan sistem penghantaran ini adalah fibrosis usus. Tetrandrine digunakan sebagai obat antifibrosis usus. Penelitian ini bertujuan untuk membuat beads dengan metode gelasi ionik menggunakan polimer natrium alginat yang tersambung silang dengan kation Ca2+. Beads kalsium-alginat tetrandrine dibuat dalam tiga formula dengan variasi konsentrasi kalsium klorida yang digunakan (2%, 3%, 4%). Ketiga formula tersebut dikarakterisasi meliputi bentuk dan morfologi, ukuran partikel, kadar air, efisiensi proses, efisiensi penjerapan, uji termal, analisis difraksi sinar x, dan uji daya mengembang. Beads yang dihasilkan berbentuk hampir bulat, distribusi ukuran partikel 742.753µm – 780,683µm. Efisiensi penjerapan dari ketiga formula berturut-turut yaitu 78,920%, 82,701%, dan 68,504%. Formula yang paling optimum (beads formula 2) disalut dengan HPMCP HP-55 atau CAP kemudian dilakukan uji pelepasan obat secara in vitro. Uji pelepasan dilakukan pada medium asam klorida pH 1,2, dapar fosfat pH 7,4 dan dapar fosfat pH 6,8. Hasil pengujian menunjukkan bahwa beads yang disalut dengan CAP 10% melepaskan obat dengan total kumulatif yang paling besar. Beads CAP 10% dilakukan uji pentargetan obat secara in vivo dan hasilnya beads ditemukan dalam usus tikus.

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Colon drug delivery system has been used to facilitate drug to release and give therapeutic effects in colon. Intestinal fibrosis is one of the diseases that can be cured by colon drug delivery system. Tetrandrine was used as intestinal antifibrotic drug. The aim of this research was to prepare beads by ionic gelation method, where sodium alginate were crosslinked with Ca2+ cation. Calcium-alginate beads tetrandrine were prepared in three formulas which various concentration of CaCl2 (2%, 3%, 4%). These beads were characterized include shape and morphology, particle size, moisture content, process efficiency, entrapment efficiency, thermal analysis, x-ray diffraction analysis, and swelling analysis. The result showed that beads which produced have almost spherical form, most of particle size was between 742.753µm – 780,683µm. The entrapment efficiency of three formulas were 78.920%, 82.701%, dan 68.504%. The best formula (beads formula 2) coated with HPMCP HP-55 or CAP and tested by in vitro drug released. The release test performed in pH 1.2 hydrochloric acid, pH 7.4 and pH 6.8 phosphate buffer. The highest drug released of tetrandrine showed in beads which coated by CAP 10%, then tested by in vivo drug targeting and the result showed that beads were found in intestinal rat.