Pengaruh jumlah pelarut diklorometana dalam pembuatan kapsul mikrospons natrium diklofenak dan uji pelepasan secara in vitro = Effect of the dichloromethane in the preparation of capsules loaded diclofenac sodium microsponges and its in vitro release / Mayangsari

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Abstrak

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Natrium diklofenak merupakan obat AINS yang memiliki waktu paruh yang cukup pendek yaitu 2 jam. Akibatnya, frekuensi dari pemberian obat akan menjadi lebih sering. Oleh karena itu, untuk mengatasi permasalahan waktu paruh yang pendek maka dibuatlah formulasi natrium diklofenak dengan teknologi mikrospons karena dapat memodifikasi profil pelepasan obat sehingga frekuensi pemberian obat dapat diminimalisir. Penelitian ini dilakukan dengan metode difusi pelarut emulsi dengan pelarut yang dapat menguap yaitu diklorometana. Formulasi yang dilakukan yaitu optimasi perbandingan obat dengan polimer (1:1, 1:3, 1:5) selanjutnya dikarakterisasi dan dipilih satu formula yaitu formula 1:3 untuk dioptimasi dengan berbagai jumlah pelarut diklorometana 5 ml, 10 ml, 15 ml, dan 20 ml. Dari hasil karakterisasi dan evaluasi, formula optimum yang didapat dengan perbandingan obat dan polimer 1:3 dan pelarut diklorometana 15 ml. Formula tersebut kemudian dijadikan sediaan kapsul. Hasil disolusi menunjukkan bahwa pelepasan obat mengikuti kinetika pelepasan orde nol.
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ABSTRACT
Diclofenac sodium is an NSAIDs that has short half-life time is 2 hours. As a result, drug administration will be more frequent. Therefore, to overcome this problem, formulation of diclofenac sodium with microsponge technology has been made. It can modify drug release profile so that the frequency of drug administration can be minimized. This research was done with the emulsion solvent diffusion method, using dichloromethane as a volatile solvent. Formulation optimization was done by comparing the ratio of drug-polymer (1:1, 1:3, 1:5) and characterizing it, then the chosen formula 1:3 was optimized further with varying amounts of dichloromethane solvent (5 ml, 10 ml, 15 ml and 20). Based on the characterization and the evaluation, the optimum formula was using variant drug-polymer 1:3 and 15 ml dichloromethane. The formula was then made for capsules preparation. The dissolution results showed that drug release following the zero-order release kinetics;Diclofenac sodium is an NSAIDs that has short half-life time is 2 hours. As a result, drug administration will be more frequent. Therefore, to overcome this problem, formulation of diclofenac sodium with microsponge technology has been made. It can modify drug release profile so that the frequency of drug administration can be minimized. This research was done with the emulsion solvent diffusion method, using dichloromethane as a volatile solvent. Formulation optimization was done by comparing the ratio of drug-polymer (1:1, 1:3, 1:5) and characterizing it, then the chosen formula 1:3 was optimized further with varying amounts of dichloromethane solvent (5 ml, 10 ml, 15 ml and 20). Based on the characterization and the evaluation, the optimum formula was using variant drug-polymer 1:3 and 15 ml dichloromethane. The formula was then made for capsules preparation. The dissolution results showed that drug release following the zero-order release kinetics, Diclofenac sodium is an NSAIDs that has short half-

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