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Original Article

Effects of solvents: preparation and characterization of sustained release intranasal microspheres of rizatriptan benzoate

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Abstract

The nasal administration of rizatriptan benzoate has been studied using microspheres constituted by ethyl cellulose and sodium carboxymethylcellulose. Microspheres were prepared using two different solvents, dichloromethane, ethyl acetate and their mixture in 1:1 ratio. The microspheres were prepared using various drug to polymer ratio with the help of solvent evaporation technique and characterized for various parameters. *In-vitro* drug release/ drug diffusion studies were performed in phosphate buffer (pH 6.4). *Ex-vivo* study (drug permeation study) was carried out on sheep nasal mucosa. The physical properties, particle size, entrapment efficiency, mucoadhesion time and % drug release depend on the solvent used and on drug to polymer ratio. In order to further investigate the type of drug release mechanism taking place, the % drug release data were plotted according to the four different kinetic models. *In-vitro* drug release studies showed that peppas and matrix release characteristics were exhibited.

Keywords: Solvent evaporation technique, ethyl cellulose, dichloromethane, ethyl acetate, *in-vitro* drug release, ex-vivo study

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