DEVELOPMENT AND IN-VITRO EVALUATION OF ORLISTAT MICROCAPSULES BY IONIC GELATION METHOD

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ABSTRACT

The microcapsules of orlistat, an anti-hyperlipidemic drug, were developed utilizing the concept of controlled release and to obtain a unique drug delivery systems which could remain in body and control the drug release for longer period of time. Orlistat microcapsules with a coat consisting of varying combinations of alginate, HPMC and carbopol-940 were prepared by ionic-gelation method. The prepared orlistat microcapsules were evaluated in different rheological behaviour and release studies. It was found that the microcapsules were discrete, nearly spherical and free flowing as revealed by Scanning electron microscope. The size of microcapsules was found in the range of 637±1.73 to 679±2.64 μm where as percentage yield varies within range of 69.33 ± 0.44 to 76.21 ± 0.21%. The Carr's index, Hausner's ratio and angle of repose indicated the excellent flowing properties. Sharp endothermic peaks were found from the microcapsules formulated with polymers. FTIR analysis indicated the compatibility between the drug and the polymers which was also confirmed by DSC studies. The entrapment efficiency was found in the range of 58.55 ± 0.12 to 77.37 ± 0.09 % and the drug release from microcapsules was found slow, followed Higuchi model with non-fickian release mechanism. These microcapsules proved to be suitable for oral controlled release of orlistat.

Keywords: Microcapsules, orlistat, ionic-gelation method, HPMC, carbopol-940.