



Fabrication of Novel Gastro-Retentive Floating Microcapsules by Utilizing a Combination of HPMC and EC and their Physicochemical Assessment

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SUMMARY. The project was aimed to develop floating microcapsules (FMs) using combination of a hydrophobic (ethyl cellulose, EC) and hydrophilic polymer (hydroxy propyl methyl cellulose, HPMC), and to evaluate them. An easy and novel phase separation method was adopted to prepare FMs. Chloroform and paraffin oil were employed as solvent and non-solvent respectively. Five kinetic models were applied to assess and describe the mechanism and pattern of tramadol hydrochloride (TmH) release from FMs and they were subjected to FTIR and XRD to evaluate TmH-HPMC-EC interaction. As EC concentration was increased the retardation in drug release, improvement in flow characteristics and decrease in floating time were observed. Kinetics of drug release was followed by Korsmeyer-Peppas kinetic model. It was concluded that the floating microcapsules of TmH can be produced using phase separation method and they have no drug-polymer interaction. The accelerated stability studies also ensured the physicochemical integrity of FMs.

KEY WORDS: Floating microcapsules, Non-solvent addition, Polymers combination, Tramadol.

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