



Preparation and Characterization of Gellan-Chitosan Polyelectrolyte Complex Beads

Raghav DIXIT ¹, Anurag VERMA ^{*1}, Uday P. SINGH ¹, Shashank SONI ¹,
Arun K. MISHRA ¹, Ashok K BANSAL ¹, Jayant K. PANDIT ²

¹ *Department of Pharmaceutics, College of Pharmacy, IFTM Campus,
Moradabad, 244001, Uttar Pradesh, India*

² *Department of Pharmaceutics, Institute of Technology, Banaras Hindu University, Varanasi, India*

SUMMARY. The purpose of the present investigation was to prepare gellan-chitosan polyelectrolyte complex beads in one step and to explore the potential of the prepared beads in the oral delivery of metronidazole ($\log P = 0.0$) and metronidazole benzoate ($\log P = 2.19$). Beads were prepared by extruding aqueous solution of gellan gum (with or without drugs) into chitosan solution in acetic acid pH adjusted to 3.5. Prepared beads exhibited poor encapsulation and burst release for metronidazole, while very high encapsulation and extended release was observed for metronidazole benzoate in simulated gastric fluid (SGF, pH 1.2). Incorporation of type A & B gelatin significantly improved the metronidazole encapsulation in the beads but the release pattern remained the same. Overall, gellan-chitosan beads showed poor retardant capacity of drug release for metronidazole whereas good retardant capacity was observed for metronidazole benzoate.

KEY WORDS: Chitosan, Controlled release, Gellan gum, Polyelectrolyte complex, Site specific drug release.

* Author to whom correspondence should be addressed. *E-mail:* anuragverma_iftm@yahoo.co.in