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Floating Gellan-Chitosan Polyelectrolyte Complex Beads: Effect of Gelucires Incorporation on Encapsulation Efficiency and Drug Release

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***SUMMARY*. The purpose of the present investigation is to study the effect of incorporation of gelucire 39/01 and 50/13 on encapsulation efficiency and release of water soluble drug (metronidazole, log P = 0.0) from floating gellan-chitosan polyelectrolyte complex (PEC) beads. Floating emulsion PEC beds were prepared in one step without using any chemical crosslinker. Briefly, an emulsion of gellan gum (GG) with gelucire 39/01 and 50/13 containing $CaCO_3$ and drug was extruded dropwise into low molecular weight chitosan (LMCH) solution. Beads formed instantaneously were cured for 15 min at elevated temperature (37 °C). Prepared beads showed excellent buoyancy along with significantly improved encapsulation efficiency and sustained release of metronidazole when compared to floating gellan-chitosan PEC beads prepared in the similar manner but without gelucires. Experimental data obtained from the present investigation showed that floating emulsion PEC beads may form a potential stomach site specific drug delivery system for the delivery of highly water soluble drugs with an absorption window in the upper gastrointestinal tract.**

KEY WORDS: Complex coacervation, Emulsion beads, Floating drug delivery, Gellan-chitosan beads, Gelucire, Metronidazole, Polyelectrolyte complex.

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