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Investigation of Ghatti Gum as a Carrier to develop Polymeric Blend Beads of Galantamine Hydrobromide

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Abstract: Polymeric-blend beads of ghatti gum with sodium alginate containing the drug, galantamine hydrobromide were prepared by varying the gum concentrations and cross linkers viz., $CaCl_2$ and $AlCl_3$. It was found that in comparison between $AlCl_3$ and $CaCl_2$, the particle size, percent yield and drug entrapment efficiency was greater in beads prepared by $AlCl_3$ as cross linking agent. Formulation SGF6 formulations showed high percent yield which may be attributed for higher concentration of ghatti gum. SEM photographs for the prepared formulation indicated that the beads were having smooth and crack-free surface. FTIR and DSC spectra indicated that galantamine hydrobromide has not undergone any chemical interaction with the polymers and excipients used. *In vitro* drug release data indicated that formulations SGF3, SGF5 and SGF6 showed a release of about 99, 98 and 94% at the end of 12 h indicating their suitability for showing a 12 h release profile. Mathematical model fitting indicated that the best-fit model for the formulations was peppas and the release of drug from the polymer matrix followed super case-II transport. Formulation SGF6 was found to be ideal and when subjected for stability studies showed that the drug was stable.
Keywords: Ghatti gum, beads, sodium alginate, galantamine hydrobromide.

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