FORMULATION AND DEVELOPMENT OF MUCOADHESIVE NASAL DRUG DELIVERY OF ROPINIROL HCL FOR BRAIN TARGETING

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ABSTRACT (Maximum 200 words)

Objective: The purpose of this research was to create polymeric nanoparticles of ropinirole HCl for nasal administration utilising the ionic gelation process.

Methods: The preparation method was optimized using box-behnken design employing chitosan concentration, guar gum concentration and surfactant concentration as independent variables were as Encapsulation efficiency and mucoadhesion of the formulation were selected as dependent variables. Differential scanning calorimetry and infrared spectroscopy analysis of the drug and polymers revealed that the drug and excipients are physicochemically compatible. Studies on entrapment efficiency, drug content, and In vitro release were conducted on the nanoparticles.

Results: Each formulation was determined to have a drug content of between 60% and 70% and an entrapment efficiency of between 65% and 84%. In vitro drug release tests demonstrated that ropinirole HCl will release between 65 and 81 percent after 5 h.

Conclusion: The results showed that the particle size, encapsulation effectiveness, and drug content were all significantly affected by the amounts of chitosan and guar gum.

Keywords: Ropinirole HCl, Nanoparticles, Box-behnken, Mucoadhesion, Encapsulation **(Maximun 5 words)**