ABSTRACT

EFFECT OF CARRAGEENAN POLYMER AND MALTODEXTRIN ON PHYSICAL CHARACTERISTICS AND RELEASE OF CIRPROFLOXACIN HCl-CARRAGEENAN MICROSPHERES

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The aim of this research was to examine the effect of kappa carrageenan concentrations and maltodextrin on the characteristic and release of microspheres, were made by ionotropic gelation method using aerosolization technique with kappa carrageenan polymer (0.50 % and 0.75%) , crosslinker KCl (1.5 %), lyoprotectant maltodextrin (5%) and was dried using freeze dryer with four formula, there were F1 (carrageenan 0.75% without maltodextrin), F2 (carrageenan 0.50% without maltodextrin), F3 (carrageenan 0.75% with maltodextrin), F4 (carrageenan 0.50% with maltodextrin). Results showed that particle size was within range 1.34 µm to 1.70 µm, drug loading was within range 15.63% to 38.72%, entrapment efficiency was within range 25.38% to 51.61 %, yield was within range 52.53% to 63.19%, swelling index was within range 121% to 290%, and muchoadhesive was within range 0.0059 to 0,0096 kg force. The release rates of these microspheres within range 0.0290% to 0.0313% with zero order release model. The result of particle size, moisture content, drug loading, entrapment efficiency, muchoadhesivitas yield, and release were analyzed statistically using one way ANOVA, it was found that increasing kappa carrageenaan concentration and added maltodextrin affect particle size, drug loading, entrapment efficiency, but didn't affect muchoadesive, yield and release of ciprofloxacin HCl-carrageenan microspheres.

Keywords : Ciprofloxacin HCl-carrageenan, microspheress, aerosolization, characteristics, release, kappa carrageenan