ABSTRACT

Effect of Coating Methods in Physical Characteristic and Release Profile of Ketoprofen-Chitosan Microparticles

(Prepared by Orifice-ionic gelation methods use alginat as coating agent)

Microparticles of ketoprofen could be developed to avoid gastrointestinal irritation. The aim of research is to investigate effect alginate coating methods effect on physical characteristic and drug release of microparticles of ketoprofen with polymer combination of chitosan and alginate. Microparticles of ketoprofen were prepared by orifice-ionic gelation method using 23 G syringe. The first method is by mixing chitosan and ketoprofen together and then dropped into a solution containing the alginate and cross-linker agent with ratio of 1:1 and 1:0.5. The second method is by forming microparticles first and then soaked in a solution of the second polymer. The obtained microparticles was evaluated for its morphology and particle size, drug content, and drug release in simulated gastric fluid (pH 1.2) and phosphate buffer media pH 6,8. The result showed that ratio of polymer chitosan-alginate (1:1) with cross-linker TPP using second method had a smoother surface and spherical in shape. The result showed that the highest drug content was 50.95% by microparticle prepared by second coating method with ratio polymer 1:0.5. The microparticles prepared by second coating method with ratio polymer (1:0.5) chitosan-alginate and cross-linker TPP had high ketoprofen content. In vitro release of microparticles in simulated gastric fluid (pH 1.2), micropaticles obtained from first coating methods was slower than microparticles obtained from second one.

Keyword: ketoprofen, microparticle, chitosan, sodium alginate, orifice ionic gelation, cross-linker, sodium tripolyphosphate.