ABSTRACT

The Effect of Different Diameter of Needles on Physical Characteristics and In Vitro Release Profile of Ketoprofen-Alginate Microparticles (Prepared by orifice-ionic gelation with peristaltic pump methods)

Rahmat Rasyidi

Microparticle of ketoprofen-alginate with different diameter of needle 21G (0.8 mm), 22G (0.7 mm), and 23G (0.6 mm) were prepared by orifice-ionic gelation with peristaltic pump method. The aim of this research was to know the effect of different diameter of needles on physical characteristics and in vitro release profile of ketoprofen-alginate microparticles. The result showed particle size of microparticle prepared by different diameter of needles are 1437.78µm (P1); 1420.83µm (P2) and 1389.94µm (P3). The drug content of microparticles showed that the drug content are 29.82 ± 0.95% (P1); 31.25 ± 0.48% (P2); and 30.78 ± 0.22% (P3). The release profile showed that the release rate of ketoprofen from microparticles in medium phosphate buffer of pH 6.8 are 0.73 ± 0.03%/minutes (P1); 0.77 ± 0.03%/minutes (P2); 0.85 ± 0.02%/minutes (P3). The statistical analysis showed that the drug content has F-value (4,003) smaller than F-table (5,14), but release rate has F-value (13,892) larger than F-table (5,14). It can be concluded that ketoprofen-alginate microparticles prepared by smaller diameter of needles have a smaller size of microparticles and that release rate has increased, but diameter of needle does not influence on drug content.

Keywords: ketoprofen, alginate, microparticles, orifice-ionic gelation, peristaltic pump.