ABSTRACT

EFFECT OF CROSSLINK TIME TOWARDS THE CHARACTERISTIC OF ALGINATE-GELATIN MICROSPHERE (Prepared By Ionotropic Gelation Methods Aerosolization Technique)

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Microspheres are one of the most common types of drug delivery system which are capable of sustained release for long periods of time. Microspheres have been proposed and used in topical formulations as drug carrier vehicles. Polymer combination alginate-gelatin can be made to be microsphere. In this study, alginate-gelatin microsphere made with the ionotropic gelation methods aerosolization technique. The aim of this study is to find the influence of crosslink time towards the characteristics of alginate-gelatin microsphere. Sodium alginate concentration 2% and gelatin 0.5% was formed to be microsphere by crosslink with $CaCl_2$ in time 30 minutes (F1), 60 minutes (F2) and 90 minutes (F3) then it must be dried by freeze dryer. Characteristics that were determined include a form and morphology of microsphere, particle size, yield, moisture content, and swelling index. The result shows microsphere that already formed has spherical form. In F3, microsphere that is already formed has smallest particle size that is 3.53 µm. According to the result of statistical analysis, it shows that there is significant different inter formula related with particle size due to the influence of crosslink time. The more increase crosslink time, the more decrease particle size. Yield that is formed from three formulas not shows some improvement as getting crosslink time. Moisture content of three formulas that compliant is less than 10%. Percent value of third swelling is happened on third hours. In F1 and F2, swelling percent at the top is very large, but then it makes decrease of swelling percent sharply. The best profile swelling is owned by F3 with the swelling top value is not too high and decrease slowly to the next hour.

Keywords: Microsphere, alginate, gelatin, croslinking time, ionotropic gelation, aerosolization