

ABSTRACT

Method of Manufacturing Probiotic Microspheres with Sodium Alginate as Matrix for Inhalation Uses *Literature Review*

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The aim of this literature review was to find out what methods can be used to produce probiotic microspheres using an alginate matrix for inhalation purposes. Alginate microspheres can be produced by ionotropic gelation methods which can be divided into two, external and internal ionotropic gelation. This literature study used scoping review method, where the extracted data must comply with the journal inclusion criteria of the last 10 years, which includes microencapsulation using the principle of ionotropic gelation with sodium alginate polymer. A total of 15 articles were retrieved. The extrusion and emulsification methods can be used to make effective probiotic microspheres by looking at the characteristics of the microspheres. To obtain the best characteristics for inhalation preparation, the type and concentration of the cross-linking solution, the concentration of sodium alginate, the spray distance and the atomization pressure for the spray technique need to be adjusted. And in the emulsification method, it is necessary to adjust the type and concentration of the emulsifier, the type and concentration of the oil phase, and especially for the internal emulsification method, the acid/calcium ratio molar as a crosslinking and acidification time need to be adjusted. Based on this review of the literature, it can be suggested to develop probiotic microencapsulation studies using sodium alginate matrix with technique adjustments according to the method performed.

Keywords: Probiotic, Inhalation, Alginate, Microencapsulation, Ionotropic Gelation