ABSTRACT

INFLUENCE OF EUDRAGIT S® 100 CONCENTRATIONS IN THE MICROPARTICLE PHYSICAL CHARACTERIZATION AND IMMUNOMODULATORY EFFECT OF Bifidobacterium bifidum

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Drug delivery system can be developed by microparticle system and microencapsulation used as the production method. Microencapsulation can protecting an active substance from extreme condition and producing solid microparticles (1-1000 μm). In this study, pulsatile release used as release system, Eudragit® S 100 used as matrix and Bifidobacterium bifidum used as the active substance. Bifidobacterium bifidum has immunomodulatory effect in the intestine when the concentration is ≥ 10^6 cfu/ml but it is not stable in the gastric fluid. Microencapsulation method in this study is spray dry because it is the common method in the probiotic encapsulation. Three different Eudragit® S 100 concentrations, 0.5%; 1.0%; and 1.5%, were named formula I, formula II, and formula III respectively used as matrix of Bifidobacterium bifidum. Physical characteristic and immunomodulatory were performed in all formula. The particle size of all formula were varied in the range 2.265-9.060 μm. The moisture contain showed in the formula I, formula II, formula II are 20.78±0.44 %, 8.99±2.09 %, and 8.83±0.39% respectively. The result of Microparticle morphology : formula I is irregular shape and porous, formula II is spheris with few concave surface, formula III is is spheris with more concave surface. Formula I has the highest immunomodulatory effect which showed by the highest hemaglutinine titer than other formula.

Keywords: Microparticles, Eudragit® S 100, Bifidobacterium bifidum, physical characterization, immunomodulator