

ABSTRACT**EFFECT OF EUDRAGIT® S 100 CONCENTRATION IN PHYSICAL CHARACTERISTIC AND ENCAPSULATION EFFICIENCY FROM MICROPARTICLE *Bifidobacterium bifidum***

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Eudragit® S 100 is a copolymer of methacrylic acid and methyl methacrylate. Eudragit® S 100 will form hydrogen bonds and capable of trapping bacteria at pH <7 and will dissolve at pH > 7 in the gut so it can protect the bacteria to survive when exposed to stomach acid conditions and can survive in the intestine. The purpose of the study is to determine the concentrations of Eudragit® S 100 to the physical characteristics and the encapsulation efficiency of microparticle probiotic *Bifidobacterium bifidum*. Probiotic were spray-dried with various concentrations of matrix formula using Eudragit® S 100. The concentration used were 0,5% (Formula I); 1,0% (Formula II); and 1,5% (Formula III). Physical characteristic and encapsulation efficiency test were performed in all formula. The result showed that particle size was increase from formula I to formula II, but decrease from formula II to formula III. The microparticle morphology have spherical shape and smooth surface only in Formula II, Formula III have spherical shape but have crack surface, and Formula I have unspherical shape and porous surface. Moisture content was increase from formula I to formula III. Encapsulation efficiency increased with increasing polymer concentration, but in the highest concentration Eudragit® S 100 encapsulation efficiency was decrease. The encapsulation of efficiency increased from 32,72% to 60,85% when concentration of Eudragit® S 100 increased from 0,5% to 1,0%. Low concentration and slow solidification of the dispersed phase contibuted to increasing porosity of the microparticles as well. But, encapsulation of efficiency decreased from 60,85% to 10,57% when concentration of Eudragit® S 100 increased from 1,0% to 1,5%. Increased concentrations of Eudragit® S 100 affects the physical characteristics and the encapsulation efficiency microparticles *Bifidobacterium bifidum*. The highest physical characteristics and the encapsulation efficiency was shown on concentration 1,0%.

Keywords : Microencapsulation, Spray drying, Eudragit® S 100, probiotic, *Bifidobacterium bifidum*, physical characteristic, encapsulation efficiency.