

## ABSTRACT

**EFFECT OF MALTODEXTRIN CONCENTRATION  
(0%, 5%, 10%) ON CHARACTERISTICS OF *Lactobacillus  
acidophilus* FNCC-0051 MICROSPHERES WITH NATRIUM  
ALGINATE (2%) MATRIX**

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The aim of this research was to investigate the role of maltodextrine as lyoprotectant to the characteristic of *Lactobacillus acidophilus* probiotic microsphere with alginate (2%) as its polymer matrix. Microspheres were made by ionotropic gelation method using aerosolization technique with natrium alginate (2%) as polymer and calcium chloride (1,0 M) as crosslinker. Microspheres formed was resuspended into the solution of lyoprotectant maltodextrin (0%, 5%, 10%) and was dried using freeze dryer. The characteristics observed are yield, distribution and surface morphology, particle size, moisture content, swelling index, and viability. Result show that the yield and viability increase as the increasing amount of maltodextrine in the system. F3 indicate the highest percentage of viability enhancement of *Lactobacillus acidophilus* FNCC-0051 under ionotropic gelation method and freeze drying process was  $60,95 \pm 35,76\%$ , and from the statistical test show F3 was significant different with other formula ( $p < 0,05$ ). In while the moisture content (%) decrease as the increasing amount of maltodextrine from 5,68% to 3,25%. Swelling index measured based on mass in 6 hours was within range 430,77% to 658%. The particle size of F1, F2, and F3 were 2,0930  $\mu\text{m}$ , 1,5829  $\mu\text{m}$ , and 1,2985  $\mu\text{m}$ , also decrease as the increasing amount of maltodextrine. The result of particle size, moisture content, viability, yield, and swelling index were analyzed using *One Way* ANOVA, it was found that increasing maltodextrin concentration significantly affect the particle size, moisture content, viability, yield, and swelling index.

Keywords : *Lactobacillus acidophilus* FNCC-0051, alginate-microspheres, ionotropic gelation, freeze drying, lyoprotectant, maltodextrin