

## ABSTRACT

### EFFECT OF SODIUM ALGINATE CONCENTRATION IN THE IMMUNOMODULATORY EFFECT OF *Lactobacillus casei* MICROPARTICLE FORM

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Microencapsulation is a process to entrap the active substances within matrix providing protection from extreme condition to inhibit or to reduce loss of the active substances. Probiotics are defined as microorganisms, when administered in adequate amount confer a health benefit on the host. *Lactobacillus casei* has immunomodulatory effect by increasing the production of IgA, IgG, and IgM. Viability of probiotics are decreased in the stomach, whereas their site of action is in intestine. Microencapsulation has been used as an efficient method for improving the viability of probiotics in gastrointestinal tract. The purpose of this research is comparing the immunomodulatory effect of *Lactobacillus casei* with sodium alginate (FI = 1%, FII = 1,5% and FIII = 2,5%) as a matrix in the microparticle form. The microparticle was made by extrusion method and dried by freeze drying in 80°C for 20 hour. The highest immunomodulatory effect is  $2.96 \pm 0,35$  obtain by FIII, but FI and FII both have the same immunomodulatory effect. FI, FII, and FIII did not show significant different ( $p < 0,05$ ). Increasing sodium alginate concentration not increasing the immunomodulatory effect of *Lactobacillus casei* microparticle.

**Keywords:** Microencapsulation, *Lactobacillus casei*, Probiotic, Sodium Alginate, Immunomodulatory effect