

Effect of coconut oil emulsion on encapsulation of *Lactobacillus bulgaricus* and survival in simulated gastrointestinal conditionsOthman, N.I.^{1*}, Shahril, M.¹, Ramli, S.¹, Malek, R. A.¹, Mohd. Noor, N.¹, Sarmidi, M. R.¹ and Abd Aziz, R.¹

A technique was developed to protect lactic acid bacteria against high temperature during spray drying by encapsulation of bacteria cells within film-forming protein-carbohydrate- coconut oil emulsion. For these studies, the viability of the *Lactobacillus bulgaricus* was the highest in the feed formulation GANAMDO₁ (containing 50% gum Arabic, 40% maltodextrin, 10% sodium caseinate w/w in oil/wall ratio=1) with 12.3×10^{-10} % viability after spray drying, surviving up to 2 times better than control cells (containing 100% gum Arabic in oil) at outlet air temperature 80-85°C. Increasing the proportion of the wall material (oil/wall ratio = 0.5) do not improved the viability of *Lactobacillus bulgaricus* after spray drying. The viable counts of spray dried *Lactobacillus bulgaricus* entrapped in GANAMDO₁ were more than 3 log cycles than those obtained with others feed formulation after sequential exposure to simulated gastric and intestinal juices.

Keywords: Microencapsulation, *Lactobacillus bulgaricus*, gum arabic, coconut oil, spray drying, simulated gastric condition.

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