



## OPTIMAL CONCENTRATION OF PREBIOTIC RAFFINOSE TO INCREASE VIABILITY OF *Lactobacillus acidophilus*, *Lactobacillus bulgaricus*, *Streptococcus thermophilus*

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### ABSTRACT

Raffinose is an oligosaccharide consisting of three monosaccharide units, namely galactose, glucose, and fructose which are linked by  $\alpha$ - (1-6) glycosidic bonds. Raffinose can be obtained mainly from soybeans, green beans, cabbage, broccoli, beets, asparagus, and wheat. Oligosaccharides such as raffinose can be a source of prebiotics because they are not enzymatically hydrolyzed in the stomach and small intestine so they can reach the large intestine. The use of raffinose in Indonesia is still limited due to its relatively high price. This is inversely proportional to Indonesia's abundance of natural sources of raffinose. The purpose of this study was to analyze the optimal concentration of raffinose to increase the viability of *Lactobacillus acidophilus*, *Lactobacillus bulgaricus*, and *Streptococcus thermophilus*. The design used was a completely randomized design (CRD) with fixed variables being the concentration of raffinose and the independent variables were the viability of lactic acid bacteria, the pH value, and the total titrated lactic acid levels. *L. acidophilus* was the most sensitive and fast-growing probiotic with high viability in modified MRSB media with the addition of raffinose, followed by *S. thermophilus* and *L. bulgaricus*. The optimal viability of *L. acidophilus* occurred at the addition of 0.3% raffinose with an incubation time of 24 hours. Meanwhile, for *L. bulgaricus* and *S. thermophilus* the optimal viability occurred at the addition of 0.5% raffinose with an incubation time of 24 hours.