

OR-67**Optimization OF Bacteriocin Production BY *Lactobacillus Plantarum* using Response Surface Methodology**

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The study aimed to optimize the growth conditions for the production of bacteriocin by *Lactobacillus plantarum* 1012, isolated from fermented *bambangan* using response surface methodology (RSM). The experimental design applied for the optimization process was central composite design with, each factor assigned a lower level, upper level and a centre point of which assigned a code of -1, +1, and 0 respectively. A total of 20 sets of experiments with three repetitions were performed. Incubation temperature, initial pH and incubation time were identified as critical factors, which significantly affecting the bacteriocin production. Response surface data showed the highest bacteriocin production was achieved at pH 5.05 and temperature 20.02°C when incubated for 18.6 hours. An increase in the bacteriocin production was obtained under this optimised condition. The difference between the predicted values and the actual experimental results on bacteriocin production was small (< 5%), which indicate the model is reliable and adequate to reflect the expected optimization. The bacteriocin obtained shown to have a wide antibacterial spectrum against *Staphylococcus aureus*, *Salmonella typhimurium*, *Salmonella enteritis*, *Listeria monocytogenes* and *Vibro parahaemolyticus*, where *Salmonella enteritis* was the most susceptible. The results indicate the production of bacteriocin could be maximized for commercial scale up applications.

Keywords: Bacteriocin, optimization, response surface methodology.
