

## **ABSTRACT**

3-Hydroxypropionaldehyde (3-HPA) is an important antimicrobial substance. This substance can be used in many applications as a food preservative or as a therapeutic auxiliary agent. 3-HPA can be produced by conversion of glycerol by glycerol dehydratase found in *Klebsilla spp*, *Clostridium spp.*, *Acetobactor spp.*, and some strains of lactic acid bacteria (LAB) (Hamsupo et al., 2008). In this research we screened merely for the LAB because some LAB can be able to produce 3 HPA and bacteriocin as the product and they are abundant in the animal gastrointestinal tract especially in the piglet and chicken gastrointestinal tract. One hundred and ten colonies were isolated by the plating on the MRS agar with 0.5% CaCO<sub>3</sub>. Then each colony was tested by using the confirmation test. Among that only forty five colonies passed the confirmation test, further selection indicated that nine colonies were able to inhibit the growth of the *Escherichia coli* on MRS agar supplemented with 80% glycerol and MRS agar. The colonies were then subjected to test for their abilities to produce antimicrobial compound or 3-HPA by paper disc method using two fold dilutions. All isolates displayed the antimicrobial activity against *E. coli*, of which 4 isolates showed the similar activity to the reference strain, *Lactobacilus reuteri* the Au/ml of the inhibitory activity of both bacteriocin and 3 HPA were in range of 200-300 Au/ml. pH of the cell supernatant both MRS and 80% glycerol were measured. The pH of the cell free MRS solution was ranged in pH of 4-5 where the pH in cell free 80% glycerol solution was ranged in pH of 6-7. Therefore *E.coli* was then grown on the LB media of the pH in range of 4-5 and pH 6-7 to confirm that the inhibitory effects were not created by the acid. The result showed that they could grow on such range of pH which indicated that the clear zone produced around the colonies was not from the inhibition resulted from the acid but from the substances in the solution suspected bacteriocin and 3-HPA.