The potential of Pediococcus Acidilactici Isolated from Waste Dangke as Probiotic Candidate in Inhibiting Intestinal Pathogenic Bacteria

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Abstract. The terminology of lactic acid bacteria is intended for bacteria that are able to produce lactic acid as a major catabolic end product from glucose. Because of its ability to ferment which produces a variety of food products that aim in addition to preserving, also has a therapeutic effect, so these bacteria are known as probiotic bacteria. However, there are several criteria that lactic acid bacteria can be shown to be a probiotics candidate for healthy intestinal organs. The probiotic strains shall be able to survive transit through the gastric acid environment as well as exposure to bile and pancreatic juice in the upper small intestine to be able to exert beneficial effects in the lower small intestine and the colon, it must also have the ability to adhere to the epithelial cells of human intestine and the ability to form colonization of the digestive tract. So it can be useful in inhibiting and replacing the attachment of pathogenic bacteria to intestinal epithelial cells. Pediococcus acidilactici isolated from waste of Dangke processing is one of the species of lactic acid bacteria. Dangke is an Indonesian food traditionally manufactured by Enrekang community, South Sulawesi which is produced by heating the milk and clotting using papaya latex to separate the curd and whey. Meanwhile, the waste of Dangke processing or whey Dangke is a liquid obtained from filtering the curd after the casein clumping process in Dangke production. This study aims to determine the bacterial attachment of Pediococcus acidilactici on intestinal epithelial cells as probiotic candidates in inhibiting and replacing the attachment of pathogenic bacteria to intestinal epithelial cells. This is a descriptive qualitative study using either single culture of Pediococcus acidilactici cultivated on MRSA media with small intestine of Mus musculus samples. The results obtained showed that Pediococcus acidilactici have the ability to adhere to the small intestine of mice in vitro. This is an indication of adhesion capability of Pediococcus acidilactici to the small intestine of mice so that the lactic acid bacteria has potential as a candidate probiotic that function to prevent the invasion and dominance of pathogenic bacteria in the small intestine.

Keyword: pediococcus acidilactici, waste of dangke processing, adhesion, small intestine of mice.