ABSTRACT

Theeffa Alaika. 24020222140058. ***Plantaricin*** **Coding Gene Detection and Antibacterial Activity Test of *Lactiplantibacillus plantarum* Isolate from Salted Vegetables After Long-Term Cryostorage**. Under guidance Arina Tri Lunggani and Fera Roswita Dewi.

The lactic acid (BAL) bacterium *Lactiplantibacillus plantarum* isolated from traditional fermented foods such as salted vegetables has great potential as a natural biopreservative agent due to its ability to produce antimicrobial compounds in the form of bacteriocins or *plantaricin.* However, these local isolates are generally stored for a long time in *cryostorage* conditions (temperature -80 °C) which has the potential to affect cell viability, pasmid stability, gene expression, and bacteriocin production ability due to prolonged cold stress. This study is a post-long-term cryostrogae evaluative (>5 years) which aims to evaluate the viability and success of isolate rejuvenation, detect the presence of *plantaricin* encoding genes through PCR methods, test the antibacterial activity of isolate against pathogenic bacteria, and reconfirm the taxonomic identity of isolates from 10 collection isolates. The research methods include isolates rejuvenation in MRSB and MRSA media, genomic DNA extraction, gene detection using *Gradient* PCR, antibacterial activity testing by *well diffusion*, *disk diffusion*, and *spot-on-lawn methods*, as well as species confirmation based on 16S rRNA gene sequence analysis. The results showed that storage at a temperature of -80 °C was proven to be able to maintain the viability of the isolate. Genotypically, the *pln*EF gene was detected in 2 isolates, the *pln*JK gene in 4 isolates, and the *pln*W gene in 2 isolates, while the *pln*A and *pln*F genes were not detected in all isolates. Functionally, the entire isolates showed no antibacterial activity against the growth *of E. coli* and *S. aureus* in all three methods used. Confirmation of molecular identity showed that 8 isolates were identified as *Lactiplantibacillus plantarum* and 2 isolates were identified as *Lactobacillus pentosus* with a very close degree of sequence homology (>99%).

Keywords: *antibacterial, encoding genes, Lactiplantibacillus plantarum, salted vegetable*.