

## ABSTRACT

Lucyana Ershy Ar Rista, 24020221120006. **Isolation, Characterization, and Identification of Lactic Acid Bacteria Producing Bacteriocin-Like Inhibitory Substances (BLIS) from Terasi.** Under the guidance of Arina Tri Lunggani and Fera Roswita Dewi.

Lactic acid bacteria (LAB) are a group of microorganisms that play an important role in food fermentation, including in terasi, a traditional fermented product rich in microflora. Some LAB strains are known to produce Bacteriocin-Like Inhibitory Substances (BLIS), antimicrobial compounds that have potential as natural preservatives in the food industry. This study aims to isolate, characterize, and identify BLIS-producing LAB from shrimp paste. The method used in this study includes isolation of LAB using spread plate and streak plate techniques on MRSA media, followed by the production of crude BLIS from selected isolates. Antibacterial test was conducted by well diffusion method against pathogenic bacteria such as *Escherichia coli* and *Staphylococcus aureus*. Characterization of LAB isolates included pH tolerance, NaCl tolerance, temperature tolerance, and catalase tests. Molecular identification was carried out by colony PCR method followed by electrophoresis, sequencing, and phylogenetic tree making. A total of 227 isolates were successfully isolated with a distribution of 81 isolates from Terasi Jaya, 57 isolates from Terasi Daun, 55 isolates from Terasi Super Putih, and 34 isolates from Terasi Super Merah. A total of 85 isolates showed antibacterial activity, with crude BLIS from 68 isolates actively inhibiting *Staphylococcus aureus* and 42 isolates active against *Escherichia coli*. The highest activity was found in the isolate from Terasi Super Merah. Physiological characterization showed the isolates were tolerant of pH 3-5, temperature 6-45°C, and NaCl 4-6.5%, with optimal conditions at pH 5, temperature 28°C, and NaCl 4%. 16S rRNA gene analysis of five selected isolates identified them as *Bacillus amyloliquefaciens* and *Bacillus rugosus*, not LAB. This finding reveals the potential of the *Bacillus* genus in terasi as a source of natural antimicrobial compounds.

Key Words : *antibacterial, Bacillus, bacteria, BLIS, terasi*