

ABSTRACT

Kenya Meidiananti Wijaya. 24020222120018. **Characterization of Lactic Acid Bacteria Isolates from Fermented Mackerel Peda (*Rastrelliger* sp.) and Their Antibacterial Potential against *Staphylococcus aureus* and *Escherichia coli*.** Supervised by Endang Kusdiyantini and Arina Tri Lunggani.

Traditional fish fermentation is a natural preservation method widely applied to fishery products, including fermented Indian mackerel (*Rastrelliger* sp.). During the fermentation process, microorganisms contribute to flavor development and produce antimicrobial metabolites such as lactic acids and bacteriocins that may inhibit pathogenic bacteria. Lactic Acid Bacteria (LAB) are among the main producers of these antimicrobial compounds during fermentation. This study aimed to characterize LAB isolates obtained from fermented Indian mackerel and evaluate their antibacterial activity against *Staphylococcus aureus* and *Escherichia coli*. LAB isolation was carried out using the serial dilution method on MRSA + CaCO₃ medium. Isolate characterization included macroscopic and microscopic observations, catalase test, fermentation type test, growth curve analysis, and pH measurement. Antibacterial activity was evaluated using the disk diffusion method using LAB cell-free supernatant. The results showed that four LAB isolates, namely AK 1.3.1, AK 1.3.2, AK 1.3.3, and AK 1.4.1, were successfully obtained. All isolates were Gram-positive, rod-shaped, catalase-negative, and classified as homofermentative. All LAB isolates showed antibacterial activity against both test bacteria, although the activity was categorized as weak. Among the isolates, AK 1.4.1 showed the highest antibacterial activity, with an average inhibition zone of 2.17 mm against *S. aureus* and 1 mm against *E. coli*.

Keywords: antibacterial, BAL, *Escherichia coli*, peda, *Rastrelliger* sp., *Staphylococcus aureus*