

ABSTRACT

Diva Martha Suryani. 24020221130037. **Potential of Lactic Acid Bacteria and Its Combination with Ethanol Extract of Parijoto Fruit (*Medinilla speciosa Blume*) as an Antibacterial Agent Against *Staphylococcus aureus*.** Under the guidance of Agung Suprihadi and Siti Nur Jannah

Infectious diseases are a major problem in Indonesia, one of which is caused by *Staphylococcus aureus* bacteria, such as endocarditis, meningitis, and lung infections that affect physical and psychological. Treatment of *Staphylococcus aureus* infectious diseases is with antibiotics. However, it has currently been reported that antibiotics unable to overcome some pathogenic bacteria. Therefore, it is necessary to have another alternative by using the ability of beneficial bacteria such as Lactic Acid Bacteria (LAB) to produce antimicrobial compounds that are useful in suppressing bacterial growth and a combination of plants that have antibacterial compounds such as parijoto plants (*Medinilla speciosa B.*). This study aims to determine the antibacterial activity of parijoto fruit ethanol extract (EEP) and lactic acid bacteria (LAB) isolates from cow's milk kefir and their combination against *Staphylococcus aureus*. The extraction method used was maceration with 95% ethanol solvent in 3×24 hours. The antibacterial activity test of EEP was conducted using MHA media with disc diffusion method using variations of extract concentrations of 5%, 10%, 15%, 20%, and 25%, positive control clindamycin and negative control DMSO 10%. In addition, antibacterial activity tests of LAB and their combination with EEP were conducted with the best isolates and the best concentrations that had been tested respectively before. The test results showed that EEP showed stronger antibacterial activity than LAB against *Staphylococcus aureus*, but the combination of the two increased the antibacterial effectiveness in inhibition as indicated by the mean value of the inhibition zone of 17 ± 0.360 mm. Statistical analysis using one-way ANOVA showed significant differences between the treatment groups ($P < 0.05$), indicating the potential use of the combination of both extracts as a natural antibacterial agent.

Keywords: *Antibacterial, Lactic Acid Bacteria, Parijoto, Staphylococcus aureus*