

## ABSTRACT

Faradita Rizka Rahma. 24020120130116. **Exploration of *Rhizopus* sp. from Various Regions as a Producer of Antibacterial Compounds Against *Escherichia coli* and *Staphylococcus aureus*.** Under the guidance of Dr. Sri Pujiyanto, S.Si, M.Si and Dr. Siti Nur Jannah, S.Si., M.Si.

Diarrhea is a common disease among the Indonesian population. The bacteria that cause diarrhea, namely *Escherichia coli* and *Staphylococcus aureus*, are normal flora in the body but can infect the digestive tract. Tempeh is a product of soybean fermentation with local yeast that contains *Rhizopus* sp. as an inoculum. During the fermentation process, carbohydrates, fats, and proteins are broken down by the hydrolytic enzymes found in *Rhizopus* sp. *Rhizopus* mold is known to produce biologically active (antagonistic) antibacterial compounds against various enteric pathogenic bacteria. This study was conducted with the aim of isolating *Rhizopus* sp. from tempeh yeast originating from 10 regions in Indonesia, testing the antibacterial activity of *Rhizopus* sp. isolates, and testing the MIC (Minimum Inhibitory Concentration) of *Rhizopus* sp. extract that can inhibit *Escherichia coli* and *Staphylococcus aureus*. The research method involved isolating *Rhizopus* sp. from tempeh yeast from various regions; characterizing 10 yeast isolates macroscopically and microscopically; fermenting and selecting potential *Rhizopus* sp. isolates with antibacterial tests on 10 *Rhizopus* sp. supernatants against *Escherichia coli* and *Staphylococcus aureus*; fermenting the selected *Rhizopus* sp. isolates and producing *Rhizopus* sp. ethyl acetate extract; testing the minimum inhibitory concentration of *Rhizopus* sp. extract with concentration variations of 10%, 20%, 30%, 40%, and 50%. The results obtained from the antibacterial test of *Rhizopus* sp. extract against *Escherichia coli* showed that the R7 isolate from Jogja was effective, while the R5 isolate from Surabaya could inhibit *Staphylococcus aureus*. The MIC test of *Rhizopus* sp. ethyl acetate extract against *E. coli* at a 10% concentration showed an inhibition zone of 1.6 mm. For *S. aureus*, the MIC test at a 10% concentration showed an inhibition zone of 2.1 mm.

*Keywords* : tempeh yeast, antibacterial, *Escherichia coli*, *Staphylococcus aureus*