ABSTRACT

Luhur Fadlani Dwi Takwana, 24020221140068. **Antibacterial and Antioxidant Activity Test of Endophytic Fungal Culture of Artemisia spp**. **Plants**. Under the guidance of Sri Pujiyanto and Andria Agusta

Artemisia spp. is a plant that is often used as a traditional medicine because it contains compounds that have activities such as antimalarial, anticancer, antioxidant, and antibacterial. The dependence of the pharmaceutical industry still relies on natural raw materials which increasingly threaten the sustainability of biodiversity. Therefore, to overcome this, the application of biotechnology is crucial in finding secondary metabolites from microbial alternatives endophytes. This study aims to determine the antibacterial potential of culture extracts from plant endophyte fungi, *Artemisia vulgaris*, *Artemisia lactiflora*, and *Artemisia annua* against *Escherechia coli* and *Staphylococcus aureus* and their antioxidant potential. The study was conducted with initial screening using the TLC bigautography method to determine the potential antibacterial and antioxidant activity of the extract, then further tested using the MIC method with a concentration of 256 µg/mL; 128 µg/mL; 64 µg/mL and 32 µg/mL to determine the strength of antibacterial activity against *Escherechia coli* and *Staphylococcus aureus*. The results of the study showed that in the bicautography TLC test there was antibacterial activity for *Escherechia coli* bacteria as many as 9 extracts, namely: *Phomopsis* sp. (Flower), *Neocosmespora* sp. (Flower), *Phomopsis* sp. (Stem), *Dematiaceae* (Leaf) from *Artemisia vulgaris*, *Acremonium* sp. (Stem) from *Artemisia lactiflora*, *Colletotrichum* sp. (Flower), *Colletotrichum* sp. (Stem), *Colletotrichum* sp. (Leaf), *Colletotrichum* sp. (Leaf) from *Artemisia annua* while *Staphylococcus aureus* as many as 4 extracts, namely: *Phomopsis* sp. (Flower), *Neocosmospora* sp. (Flower), *Phomopsis* sp. (Stem), and Dematiaceae (Leaf) from *Artemisia vulgaris*. Testing, antioxidants, with bioautography TLC showed 3 extracts, namely: *Phomopsis* sp. (Flower), *Phomopsis* sp. (Stem), and *Phomopsis* sp. (Leaf) from *Artemisia vulgaris* have antioxidant activity. Further testing with MIC showed that 9 active extracts inhibited the growth of *Escherichia coli*, namely at concentrations of 64 µg/mL and 256 µg/mL. Meanwhile, for the antibacterial activity test, 1 active extract of *Staphylococcus aureus* inhibited bacterial growth and 3 extracts were inactive or still showed bacterial growth at a concentration of 256 µg/mL

Keywords: *Artemisia* spp. *Endophytic Fungi, TLC, MIC*