

## ABSTRACT

Salma Nurul Azizah. 24020221130035. **Isolation of Active Compounds from Ethyl Acetate Fraction of Endophytic Fungus KPS04 from White Turmeric Rhizome (*Curcuma alba*) as an Antibacterial and its Molecular Identification.** Supervised under Siti Nur Jannah and Praptiwi.

This study aimed to evaluate the antibacterial activity of the ethyl acetate fraction derived from the extract of the endophytic fungus isolate KPS04, based on its Minimum Inhibitory Concentration (MIC) values against *Staphylococcus aureus* Ina-CC B4 and *Escherichia coli* Ina-CC B5. Additionally, the research sought to identify the species of the KPS04 endophytic fungus and analyze its phylogenetic relationship. Extraction of secondary metabolites from both fungal biomass and growth medium was carried out using ethyl acetate as the solvent, followed by compound purification via column chromatography. Antibacterial activity was assessed using the microdilution method in a 96-well microplate to determine the MIC values against *S. aureus* Ina-CC B4 and *E. coli* Ina-CC B5. The results revealed that fraction 10.4 exhibited strong antibacterial activity, with MIC values of 32 µg/mL against *S. aureus* and 64 µg/mL against *E. coli*. Fungal identification was conducted through morphological characterization and computational molecular identification analysis. Based on its molecular identification, the endophytic fungus KPS04 was identified as *Fusarium oxysporum*, with the closest taxon being *F. oxysporum* strain MVA28 (GenBank accession no. MZ561419). Phylogenetic analysis placed isolate KPS04 within the same clade as *F. oxysporum* strains MVA28 (MZ561419), MVE85 (MZ497214), and NL-405-A (OQ561203), supported by a bootstrap value of 95%, indicating a close evolutionary relationship with the *F. oxysporum* species group.

**Keywords:** *Antibacterial, Phylogenetics, Endophytic fungi, MIC, Column chromatography*