

## ABSTRACT

Alna Maulidya. 2024. **Screening of Antioxidant Activities from Endophytic Fungi Isolated from Scale Fern (*Drymoglossum piloselloides*) Plants.** Under the guidance of Sri Pujiyanto and Siti Nur Jannah.

Antioxidants are compounds capable of preventing or eliminating oxidative damage caused by free radicals, thereby counteracting their effects. Various types of endophytic fungi are known to produce bioactive compounds that have the potential as antioxidants. The aim of this research was to determine whether endophytic fungi from scale fern (*Drymoglossum piloselloides*) have the potential as natural antioxidant agents similar to their host plant, and to investigate the secondary metabolite profile of ethyl acetate extracts from selected endophytic fungi isolates. The characterization results of the five endophytic fungal isolates from the *Drymoglossum piloselloides* fern showed that isolates DSN1 & BSN1 belong to the genus *Acremonium*, isolate DSN3 belongs to the genus *Cladosporium*, and isolates DSN2 & BSN2 belong to the genus *Penicillium*. Screening results of five isolates showed that isolate with code DSN2 exhibited the highest inhibition percentage (72.85%) under non-agitated or static incubation conditions. The inhibition percentage indicates the effectiveness of an antioxidant compound in neutralizing free radicals. The non-agitated incubation group showed superior inhibition values compared to the agitated group. The ethyl acetate extract of isolate DSN2 was further tested using the DPPH method at four concentrations (200, 400, 600, 800 ppm), with quercetin (at concentrations of 2, 4, 6, 8 ppm) used as the reference solution. Antioxidant activity was evaluated by measuring absorbance using a UV-Vis spectrophotometer at a wavelength of 517 nm. The absorbance results were used to determine the inhibition percentage, from which the IC<sub>50</sub> value of ethyl acetate extract from isolate DSN2 was calculated to be 131.42 µg/mL, with an Antioxidant Activity Index (AAI) value of 1.2, indicating strong antioxidant activity against DPPH free radicals. GC-MS analysis also identified potential antioxidant compounds out of 20 compounds successfully identified.

*Keywords: Antioxidant, Drymoglossum piloselloides, endophytic fungi, secondary metabolites*