

ABSTRACT

Some types of fungi are known to have the ability to produce Indole Acetic Acid (IAA). Fungi can be isolated from the rhizosphere and tissues of various plants, including from the rhizosphere and the root "Galam" (*Melaleuca cajuputi* Powell.), which grow predominantly in peatlands. Therefore, the purposes of this study were: (a) to isolate and measure the potential of fungi from endophytic and rhizospheric of "Galam" (*M. cajuputi*) as a producer of IAA hormone, (b) determine the types of fungal interaction that occur and their potential to increase the total IAA hormone produced. This research begins with isolation, purification, isolate screening, analysis of IAA hormone production, data analysis, seed germination test and isolates identification. The result showed that the concentration of IAA produced by *Penicillium* sp. IRZ15 was $5.86 \pm 0.47 \mu\text{g.mL}^{-1}$ to $8.46 \pm 0.26 \mu\text{g.mL}^{-1}$ and *Syncephalastrum* sp. AG15 is $4.77 \pm 0.44 \mu\text{g.mL}^{-1}$ to $8.77 \pm 0.25 \mu\text{g.mL}^{-1}$. Meanwhile, the combination of rhizospheric fungi *Penicillium* sp. IRZ15 and endophytic fungi *Syncephalastrum* sp. AG15 does not produce significantly different IAA concentrations ($6.42 \pm 0.34 \mu\text{g.mL}^{-1}$ to $9.19 \pm 0.50 \mu\text{g.mL}^{-1}$) compared to fungi used alone without combinations.

Keywords: endophytic fungi, Galam, *Melaleuca cajuputi* Powell., Indole Acetic Acid, peatland, rhizospheric fungi