

ABSTRACT

Zulfa Fadia Marsa. 24020222130045. **Exploration And Analysis Of Glucoamylase Inhibitory Activity of Potential Antidiabetic Endophytic Fungi from KHDTK Wanadipa.** Under the guidance of Sri Pujiyanto and Sekar Pelangi Manik Putri.

Glucoamylase is a digestive enzyme that breaks down complex carbohydrates into glucose, which contributes to blood glucose spikes in people with diabetes. This study aims to isolate endophytic fungi that produce glucoamylase inhibitors from potential medicinal plants *in vitro*, determine the highest glucoamylase inhibitory activity among the isolates obtained, and characterize the morphology of selected isolates. Endophytic fungi were isolated from the leaves of guava, soursop, papaya, and mango plants obtained from the Wanadipa Medicinal Plant Research Center (KHDTK Wanadipa) using a method involving surface sterilization of the plant leaves followed by inoculation onto PDA medium. Qualitative screening was performed using the TLC-iodine plate assay, followed by liquid fermentation in PDB medium, liquid-liquid extraction with ethyl acetate, quantitative testing using the DNS method, and compound analysis via GC-MS. The endophytic fungal isolation yielded a total of 9 isolates from the four plant samples, with isolate PB1 identified as the best candidate from the qualitative TLC-iodine screening results. This isolate exhibited a fluffy, grayish-white colony morphology with septate hyphae of uniform diameter and constrictions at branching points, lacking reproductive structures, suggesting it belongs to the genus *Rhizoctonia*. The yield of the endophytic fungal extract was 4.29%, and it was light brown in color. The highest inhibition percentage was 48.74% at a 100% concentration, while acarbose, used as a positive control, reached 96.22%. GC-MS analysis revealed a predominance of C9–C18 fatty acids, which are thought to act through a noncompetitive inhibition mechanism, with *pentadecanoic acid* being the most abundant compound.

Keywords: *antidiabetic, glucoamylase inhibitor, endophytic fungi*