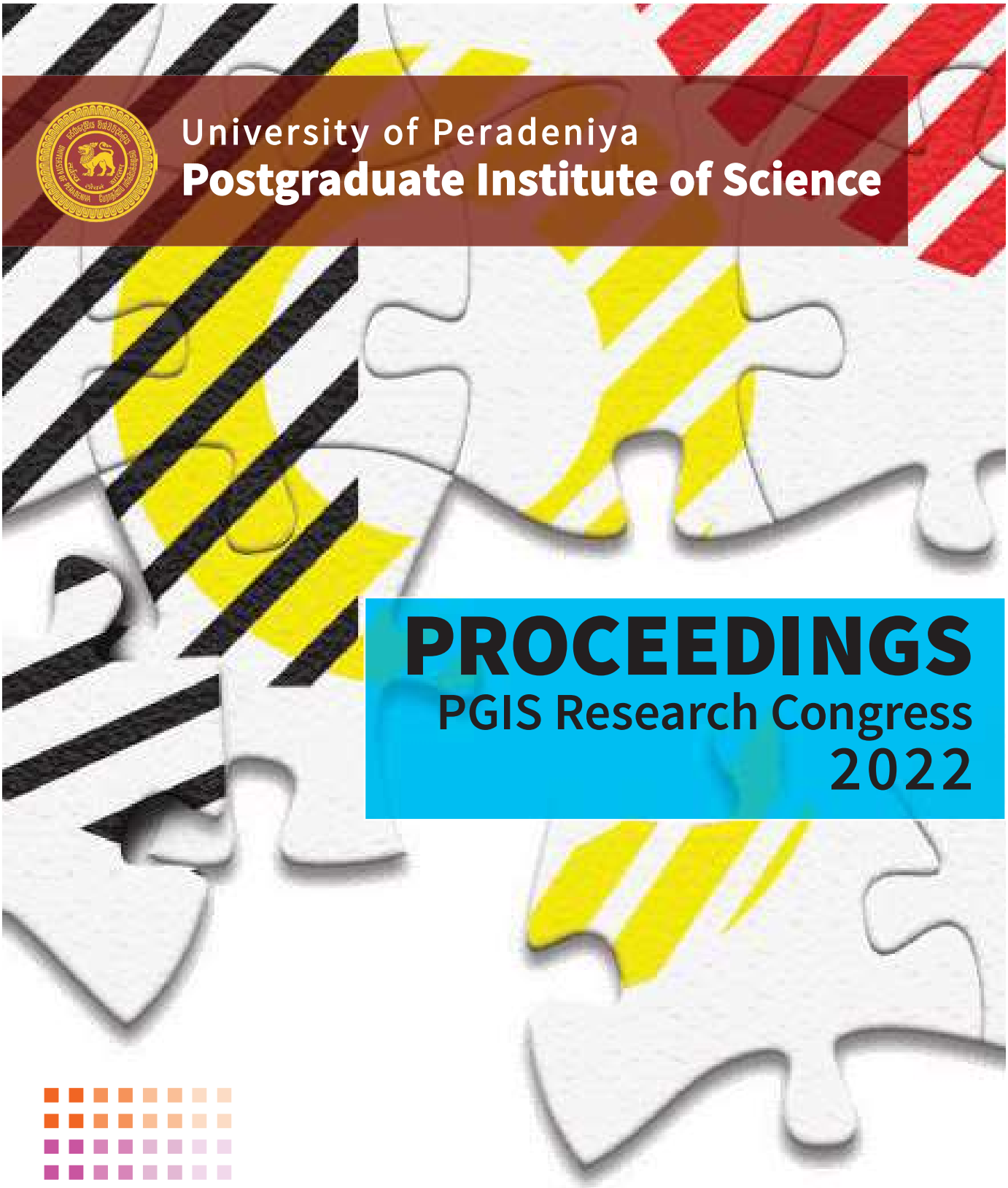

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Abstract No: 152 ***Life Sciences***

ENZYME INHIBITORY ACTIVITY OF ISOLATED COMPOUNDS FROM AN ENDOPHYTIC FUNGUS ASSOCIATED WITH *ZINGIBER OFFICINALE*

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Endophytic fungi live inside plant tissues and are capable of producing bioactive compounds. *Zingiber officinale* (Ginger) is widely used in medicine, and many studies have investigated its bioactivities. However, there are few studies related to its endophytic fungi. This study was carried out to investigate the bioactivities of compounds produced by an endophytic fungus associated with *Z. officinale,* in which the crude extracts have shown enzyme inhibitory, phytotoxic and cytotoxic activities from our previous studies. Surface sterilized rhizome segments were incubated at room temperature on potato dextrose agar. Emerged Fungus was inoculated in potato dextrose broth medium and incubated for 21 days. After incubation, the broth was filtered and extracted with ethyl acetate (EtOAc). Mycelium was extracted into EtOAc and methanol using sonication. Then, solvents were rotary-evaporated to obtain crude extracts. The extracts were subjected to chromatographic separations using gravity columns, sephadex LH-20 columns, high-performance liquid chromatography using reverse phase C-18 columns, and preparative thin layer chromatography to obtain four pure compounds: adenosine, glycerol, uracil and tyrosol which were identified using NMR data. The compounds were subjected to inhibitory enzyme assays against ⟨-amylase, α-glucosidase, acetylcholineesterase and lipase. According to the results, none of the compounds showed α-amylase inhibitory activity. Adenosine showed α-glucosidase inhibitory activity (IC_{50}=36.04±4.87 mg l^{-1}), which was higher than the positive control acarbose (IC_{50}= 74.44±10.04 mg l^{-1}). Compared to the positive control donepezil (0.76±0.11 mg l^{-1}), adenosine and tyrosol (IC_{50}=27.50±0.67 mg l^{-1}, 52.14±6.75 mg l^{-1}) showed lower acetylcholineesterase inhibitory activity. Lipase enzyme inhibitory activity was exhibited by adenosine (IC_{50}= 134.83±0.87 mg l^{-1}), which was lower compared to the positive control orlistat (IC_{50}= 2.73±1.37 mg l^{-1}). These results suggest that this endophytic fungus could produce potential enzyme inhibitors which can be used as leads for therapeutics.

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Keywords: Bioactivity, Endophytic fungi, Enzyme inhibition