

In Vitro Alpha-Amylase Inhibition by Paragis (*Eleusine Indica* (L.) Gaertn) Extract and Its Fractions

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Abstract

Plants are rich sources of potential hypoglycemic agents to control blood glucose. Since the antidiabetic studies on *Eleusine Indica* has not been widely explored, this study aimed to investigate the effect of crude ethanol extracts as well as acetone, ethyl acetate and aqueous fractions of *E. Indica* using an *in vitro* α -amylase assay (iodine method) and to determine the phytochemical profile of the plant sample using colorimetric qualitative tests. Crude ethanol extract of paragis was found to be the most potent α -amylase inhibitor among all plant samples with 96.56 ± 1.60 % inhibition at 100 $\mu\text{g/mL}$ extract concentration, and is significantly higher ($p < 0.001$, Tukey's post-hoc test) than the acarbose standard with 79.56 ± 0.44 % inhibition at the same concentration. Qualitative tests showed that these samples contain phytochemicals such as glycosides, phenols, saponins, tannins, and terpenoids. Through this finding, it was postulated that synergistic effects of these phytochemicals may contribute to its hypoglycemic activity *in vitro*. Inhibition of α -amylase suggested that *E. Indica* has the potential to hinder glucose absorption in the small intestine. Statistical correlation with the ^{13}C nuclear magnetic resonance phytochemical profile and the inhibition activity will be subject for future studies to identify the specific structural features of active compounds.

Keywords: *Eleusine indica*, antidiabetes, *in vitro*, α -amylase, iodine method