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**Investigation of Antioxidant and Anti-diabetic Activities of *Antidesma alexiteria***

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Natural products have historically played an important role in drug development and continue to be a source of innovative lead compounds or pharmacophores for medicinal chemistry. Natural bioactive compounds are quite intricate in nature, with a highly rigid structure in which the compound is either locked into the active conformation or confined to a few numbers of conformations. Hence has the potential to produce exceptional target potency and selectivity. The complexities of many natural chemicals make the commercial synthesis and the development of analogs of natural products impossible leading to the prevalent use of natural products in the field of medicine for the treatment of diseases. The *Antidesma alexiteria* belonging to the family Phyllanthaceae is an endemic plant to Sri Lanka with an underrated medicinal value. Even though previous studies have proven the use of *Antidesma alexiteria* leaves as an antidote for snake bites and the use of roots to treat dysentery most of its bioactivities are unknown. The present work aims to evaluate the antioxidant and anti-diabetic activities of the aqueous extract of *Antidesma alexiteria* fruit obtained by freeze-drying the filtered whole *Antidesma alexiteria* fruit blended with water including the total phenolic and total flavonoid contents. The antioxidant activity of the aqueous extract was assessed using the 2-diphenyl-1-picrylhydrazyl (DPPH) assay and observed IC<sub>50</sub> value of 0.038 ± 0.010 mg/mL confirming the presence of many active phenolic compounds with free radical scavenging potency. The aqueous extract of the fruit showed better results for the alpha-amylase inhibitory assay with an IC<sub>50</sub> value of 0.16 ± 0.02 mg/mL which was carried out to evaluate the anti-diabetic activity of the plant. The observed results prove the availability of bioactive compounds that can be isolated from the complex mixture of the extract using bioassay-guided chromatographic techniques and further evaluated to identify the structures of the bioactive compounds that can be utilized in the drug discovery process.

**Keywords:** *Antidesma alexiteria*, Anti-oxidant activity, Anti-diabetic activity.