α-Amylase Enzyme inhibitory and Antioxidant Activities of Fruits of Four Sri Lankan *Artocarpus* Species

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Genus *Artocarpus* of the family Moraceae consists of approximately 50 species of plants distributed in Southeast Asian and Pacific regions. Some *Artocarpus* species have been extensively studied and reported to produce many secondary metabolites with diverse structures. Most of the secondary metabolites are phenolic compounds including flavonoids, stilbenoids, arilbenzofurans, neolignans etc.

In a continuation of our research work on bioactive secondary metabolites from Sri Lankan plants, present study is aimed at investigating *in vitro* α-amylase enzyme inhibitory and antioxidant activities of edible fruits of four *Artocarpus* species found in Sri Lanka. α-Amylase is a clinically important enzyme in controlling type II diabetes. Inhibition of this enzyme significantly decreases the postprandial increase of blood glucose level after a meal by delaying the carbohydrate hydrolysis and absorption. Antioxidants are capable of stabilizing or deactivating the damage caused by free radicals.

Artocarpus nobilis is the only endemic species of the genus *Artocarpus* growing in Sri Lanka. Both seeds and young fruits are edible. *A. altilis* and *A. heterophyllus* are popular staple crops and known as jack fruit and bread fruit respectively. Fruits of *A. camansi* is known as bread nut and commonly harvested from the wild as a source of food.

Dried powdered whole fruit of *A. altilis*, *A. camansi*, *A. heterophyllus* and *A. nobilis* were defatted with *n*-hexane and extracted with dichloromethane (DCM), ethyl acetate (EtOAc) and methanol (MeOH) at room temperature using a sonicator. Solvents were evaporated under reduced pressure to obtain crude extracts. Each crude extract was subjected to α-amylase enzyme inhibitory assay and DPPH radical scavenging assay using standard protocols. Both DCM and MeOH extracts of *A. nobilis* showed strong DPPH radical scavenging activity with IC_{50} of 26 and 19 ppm respectively (positive control BHA- 19 ppm). Three extracts *A. camansi* exhibited strong antioxidant activity having IC_{50} of 18 ppm (DCM), 12 ppm (EtOAc) and 18 ppm (MeOH). MeOH extract of *A. nobilis* and EtOAc extract of *A. camansi* showed 100% inhibition of α-amylase enzyme activity at 167 ppm (positive control acarbose 100% inhibition at 167 ppm). Results indicated that fruits of *A. altilis* and *A. camansi* contain secondary metabolites with strong DPPH radical scavenging and α-amylase inhibitory activities.