

Abstract No: MO-24

Phytochemical screening and antioxidant potential of three underutilized fruit species in Sri Lanka

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Syzygium caryophyllatum (L.) Alston. (S: Dan), *Cynometra cauliflora* Linn. (S: Namnam) and *Antidesma ghaesembilla* Gaertn. (S: Bu ambilla) are three underutilized fruit species found in Sri Lanka. This research was carried out to determine the phytochemicals and *in vitro* antioxidant potential in methanol and acetone fresh fruit extracts of the three underutilized species. Methanolic and acetone extracts of edible parts of the ripe fruits were prepared and the presence of polyphenols, flavonoids, tannins and saponins in the extracts was studied using qualitative assays. Then, the total phenolic contents of the fruit extracts were determined by Folin-Ciocalteu method. Gallic acid was used as the standard and the results were expressed as milligrams of gallic acid equivalents per gram of fresh sample (mg GAE/g FW). The antioxidant activities of the extracts were determined using the 1,1-diphenyl-2-picrylhydrazyl (DPPH) free radical scavenging assay. Phenolic contents and antioxidant activities of the fruits were statistically analyzed using Two-way ANOVA and compared using Tukey's pairwise comparison. The qualitative analysis of the extracts of the three fruits revealed the presence of polyphenols, flavonoids and saponins. Tannins were reported only from methanolic and acetone extracts of *S. caryophyllatum* and acetone extract of *C. cauliflora*. The highest total phenolic contents were recorded from the acetone extract of *C. cauliflora* (27.77 ± 0.08 mg GAE/g FW) followed by the methanolic extract of *S. caryophyllatum* (26.93 ± 0.09 mg GAE/g FW). The phenolic contents of both extracts of *A. ghaesembilla* were significantly low (2.66 ± 0.01 - 3.98 ± 0.01 mg GAE/g FW). The methanolic extract of *S. caryophyllatum* had the highest DPPH free radical scavenging activity ($57.52 \pm 0.10\%$) followed by the methanolic extract of *C. cauliflora* ($41.74 \pm 0.24\%$). From the two extracts of *A. ghaesembilla*, the acetone extract showed the highest antioxidant activity ($15.88 \pm 0.52\%$). From the two solvents used to prepare the fruit extracts, methanol was the best for *S. caryophyllatum*, while for *C. cauliflora* both solvents would be beneficial. Acetone will be a better solvent to study the phytochemicals of *A. ghaesembilla*. Revealing the phytochemicals and antioxidant properties of these fruits will be useful for better utilization and commercialization of these fruits in future.

Keywords: *Antidesma*, Antioxidant activity, *Cynometra*, Phytochemicals, *Syzygium*

Acknowledgment

This work was supported by the Accelerating Higher Education Expansion and Development - Development Oriented Research (AHEAD DOR) project.