

***In vitro* ANTIOXIDANT, ANTI-AMYLASE, ANTI-GLYCATION POTENTIALS AND
MINERAL ELEMENTS OF AN ENDANGERED PLANT
Syzygium caryophyllatum L. ALSTON (SINHALA: HEENDAN)**

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Syzygium caryophyllatum L. (Family: Myrtaceae) Heendan in Sinhala is a red listed plant which is yet to be exploited as a source of functional food. Therefore, in the present study, antioxidant, anti-glycation and anti-amylase activities of leaves and fruits, and mineral elements and volatile oil composition of leaves were quantified. The aqueous extract of leaves and ethanol (95%) extract of fruits were further fractionated by solvent-solvent partitioning with hexane (Hex) and ethyl acetate (EA). Significantly high total phenolic content (TPC) and total flavonoid content (TFC) values were reported in crude extract (CR) of fruits with values 8.83±0.62 mg gallic acid equivalent (GAE)/g of sample and 2.02±0.19 mg quercetin equivalent (QE)/g of sample respectively. The EA fraction of leaves showed the highest values for DPPH radical scavenging activity, ferric reducing antioxidant power and oxygen radical absorbance capacity. Significantly high ABTS

radical scavenging activity, iron chelating activity and anti-amylase activity (IC₅₀; 47.20 ± 0.3 µg/ml) were observed in Hex fraction of fruit. The anti-glycation activity of CR extract of leaves exhibited highest inhibition with 93.61±8.53% for maximum concentration (200 µg/ml). Leaf oil analysed by GC-MS showed 64 compounds representing 92.5% of oil where phytol, α-cadinol and caryophyllene were identified as prominent compounds. Inductively coupled plasma-mass spectrometry data revealed the presence of biologically significant trace elements such as Fe, Zn, Mg, Cu, Se and Sr in leaves and fruits. Thus, the result shows that the *S. caryophyllatum* exhibited the potential to be used as a natural source for nutraceuticals and food supplements.

Keywords: Anti-amylase, Antioxidant, Antiglycation