

***In vitro* Antioxidant and Anti-inflammatory Activity of Leaf and Stem Bark of Selected *Mangifera* Species in Sri Lanka**

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Mangifera indica (MI), locally known as ‘Amba’ in Sinhalese is the richest species of *Mangifera* found in Sri Lanka with its multiple varieties. This research determined the antioxidant and anti-inflammatory effects by *in vitro* bioassays of ethanol extracts of the leaf (L) and stem/bark (SB) of three native MI varieties; Karthucolomban (K), Willard (W), and Vellaicolomban (V). Ethanol extractions were performed on the collected L and SB samples where, Total Phenolic Content (TPC), Total Flavonoid content (TFC), antioxidant assays such as DPPH, ORAC, and an anti-inflammatory assay known as human red blood cell membrane stabilization assay (HRBC), and also thin layer chromatography (TLC) were conducted. When the sample extracts were compared to gallic acid (GA) the highest TPC was recorded for KSB 3.33 mg/gGAE and KL 3.34 mg/gGAE. When compared against quercetin (Q) by the TFC assay, WL demonstrated the highest flavonoid content (1.15 mg/gQE). DPPH assay was conducted to determine the antioxidant activity, and results were compared against ascorbic acid (AA). WSB showed the highest percentage inhibition (95%), while the second highest inhibition was noted for WL (91%), and while AC only showed 77% inhibition. ORAC assay was also conducted for these two samples where it was found 0.83 mg/g AAE for WSB and 0.64 mg/g AAE for WL. Moreover, when compared to ibuprofen (97% inhibition), the highest inhibition was noted for VSB (97%), and KL and VL showed similar inhibitions (96%) by the HRBC assay. Interestingly, KL showed two prominent spots by TLC. As per the findings, it can be concluded that the tested three varieties of MI, do contain antioxidant and anti-inflammatory properties at varied levels. Nevertheless, WL and WSB showed good antioxidant activity while VSB demonstrated noteworthy anti-inflammatory activity. Thus, more detailed scientific research is warranted to effectively evaluate the medicinal effects of all parts of these varieties of the MI plant.

Keywords: *Mangifera indica*, antioxidant activity, anti-inflammatory activity