

## **Bioactive compounds and in-vitro antioxidant potential of mango (*Mangifera indica* L.) flesh, peel and seed.**

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Natural antioxidant compounds from flesh, peel and seed of fruits have gained increasing attention in the scientific community. Synthetic antioxidants cause the side effects such as cancer and cardiovascular diseases. The antioxidants from natural sources are the only alternative to synthetic antioxidant. The main objective of this study was to evaluate the potential efficacy of mango peel and seed kernel as an antioxidant. In the present study three mango varieties 'Willard', 'Karuthacolomban' and 'Vellaicolomban' were collected from Jaffna district during April to July, 2015. Ethyl acetate extracts of flesh, peel and seed kernel of three mango varieties were studied for the total phenolic content (TPC) and total flavonoid content (TFC) using Folin-Ciocalteu method and aluminium chloride colorimetric assay respectively. A study of *in vitro* antioxidant activities were also studied using different assays, which include such DPPH radical scavenging assay, Ferric ion reducing power assay (FRAP), Nitric oxide scavenging assay (NO<sup>•</sup>) and ABTS radical scavenging assay (ABTS<sup>•+</sup>). The results revealed that peel of Willard showed the highest TPC (275.61±5.24 mg GAE /g extract) and flesh of Vellaicolomban showed the highest TFC (479.80±15.30 mg QE/g extract). The DPPH radical scavenging activity results revealed that the ethyl acetate extract of Karuthacolomban seed kernel (IC<sub>50</sub>-7.7±0.4 µg/mL) showed a higher radical scavenging activity than that of the standard, ascorbic acid (IC<sub>50</sub>-11.0±0.4 µg/mL). Peel obtained from Willard and seed kernel obtained from Karuthacolomban showed the highest antioxidant activity in FRAP assay. The NO<sup>•</sup> assay results indicated that seed kernel of Karuthacolomban (IC<sub>50</sub>-60.6±3.5 µg/mL) showed significantly higher scavenging activity than other eight extracts, but it showed lower activity than, ascorbic acid (IC<sub>50</sub>-22.3±1.6 µg/mL). The ABTS<sup>•+</sup> assay indicates that seed kernel of Kruthacolomban (IC<sub>50</sub>-46.4±1.9 µg/mL) showed higher radical scavenging activity than that of the standard, Trolox (IC<sub>50</sub>-136.6± 5.2 µg/mL). Finding of the present investigation showed that the mango peel and seed kernel contained more polyphenols and exhibited good antioxidant activity than that of flesh.

*Key words: Mango pulp, Mango peel, Mango seed kernel, Antioxidant activity, Phenolic content, Flavonoids content.*