

A Comparative Study on Phytochemical Screening, Antioxidant Activity and Photoprotective Property of Ethanolic Extracts of Peel and Pulp of Mango (*Mangifera indica* L. cv. TomEJC)

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Less research has been conducted to investigate the bioactivity of peel and pulp of locally grown TomEJC mango cultivar. Therefore, this research was mainly focused on the exploration of phytochemicals, antioxidant activity, and photoprotective properties of ethanolic extracts of the peel of ripe fruit of mango cultivar TomEJC and compared with pulp. The compounds of mango peels and pulp were extracted into ethanol by Soxhlet extraction. Phytochemical screening revealed that proteins, phenols, cardiac glycosides, coumarins, alkaloids, and saponins were present in both peel and pulp. Total phenolic content (TPC), total flavonoid content (TFC), and antioxidant activity of peel and pulp extracts were determined using Folin-Ciocalteu assay, aluminum chloride colorimetric assay, and DPPH free radical scavenging assay respectively. Mango peel showed a higher TPC, TFC, and antioxidant activity (17.69 ± 0.51 mg of gallic acid equivalent per g of dry weight, 13.39 ± 0.43 mg of quercetin equivalent per g of dry weight, 76.96 ± 5.11 µg/mL IC₅₀ value respectively) than that of pulp (10.57 ± 0.57 mg of gallic acid equivalent per g of dry weight, 1.05 ± 0.94 mg of quercetin equivalent per g of dry weight, 282.21 ± 16.60 µg/mL IC₅₀ value respectively) Crude fiber content of mango peel and pulp was found to be 15.66 ± 0.28 % and 4.66 ± 0.76 % respectively. Photoprotective properties of the extracts were determined using a UV Visible spectrophotometric method and the sun protection factors (SPF) of peel and pulp extracts calculated by the Mansur equation were found to be 31.10 ± 1.18 and 2.00 ± 0.20 at 3.0 mg/mL respectively indicating a higher UV-B absorption property of the extract of mango peel. All experiments were carried out in triplicate. As the peel extract exhibited higher antioxidant and photoprotective properties it was analyzed by GC-MS and the results revealed that mango peel was rich in phytochemicals including 2-Furancarboxaldehyde, Docosane, Hentriacontane, Diethyl Phthalate, 1-Octadecene, Heptadecane, and 1-Heptadecene. Results suggested that among the peel and pulp extracts of TomEJC mango cultivar, the peel is rich in phenolics, flavonoids, and phytochemicals with antioxidant and photoprotective properties and thus will be important in herbal nutraceutical and cosmeceutical industries.

Keywords: *TomEJC, antioxidant activity, phytochemical screening*