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**Variation of phytochemicals and antioxidant capacity of domesticated and non-domesticated populations of *Momordica charantia* L. (Cucurbitaceae) fruits harvested at different maturity stages**

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*Momordica charantia* L. is a therapeutically important medicinal plant belonging to the family Cucurbitaceae, and is extensively consumed as a vegetable and used as a treatment for an array of diseases in *Ayurveda* and traditional systems of medicine in Sri Lanka. The exerted therapeutic properties of *M. charantia* are mainly due to the presence of an array of bioactive compounds. These bioactive compounds can vary according to the maturity stages of the fruits. Therefore, the present study was undertaken to determine the variation of total phenolic content (TPC), total flavonoid content (TFC) and total antioxidant capacity (TAC) of domesticated and non-domesticated populations of *M. charantia* fruits harvested at different maturity stages (Immature, semi-mature, mature, ripe). TPC, TFC and TAC of *Momordica* fruits were determined by the Folin-Ciocalteu method, aluminium nitrate method, and the Ferric Reducing Antioxidant Power Assay, respectively. Results demonstrated the presence of TPC, TFC, and TAC in all maturity stages of fruits of both populations. Significantly the higher TAC, TPC, and TFC contents were observed in immature stages of fruits of both populations. The TPC and TFC were significantly ( $P < 0.05$ ) decreased during fruit maturity. At the ripening stage, the TAC of the domesticated population was decreased up to  $3.44 \pm 0.05$  mg Trolox equivalent/g DW and  $2.26 \pm 0.29$  mg Trolox equivalent/g DW respectively. It could be concluded that immature fruits are more suitable for therapeutic purposes.

Key Words: Cucurbitaceae, *Momordica charantia*, Total antioxidant capacity, Total phenolic content, Total flavonoid content

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