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Screening of four locally available S*olanum* species for physical, phytochemical, and antioxidant capacity

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Solanum species are rich in phytochemicals hence used in traditional and Ayurveda medicinal systems. Out of several *Solanum*species available in Sri Lanka, *Solanum violaceum*Ortega. ("*Thiththathibbatu*"), *Solanum torvum*Sw. ("*Rata thibbatu*"), and *Solanuminsanum*L. ("*Elabatu*") are still considered as underutilized crops. The phytochemical contents present in these underutilized species are still not fully discovered. Therefore, the current study was aimed to compare total antioxidant capacity (TAC), total flavonoid content (TFC) and total phenolic content (TPC) of these underutilized species with commercialized *Solanum* species. Phytochemical properties such as total antioxidant capacity (TAC), total phenolics content (TPC) and total flavonoids content(TFC) were determined by the Ferric Reducing Antioxidant Power (FRAP) assay, Folin-Ciocalteu method and colorimetric method with slight modifications, respectively. Significantly higher TAC (35.73 ± 0.52mg TE/g DW) was recorded in *S. torvum*, *S. violaceum* and *S. melongena*. Moreover, significantly higher TPC and TFC were recorded in *S. torvum* (5.94 ± 0.14 mg GAE/g DW and 49.65 ± 0.97mg RE/g DW respectively). The results revealed that physical parameters, including fruit weight, fruit diameter, peel color, fruits per 100g, seeds per fruit, and outer cover to flesh ratio, varied from each otherfor tested species. The highest fruit weight (113.2 ± 6.3 g) and highest fruit diameter (37.6 ± 1.1 mm) were observed in *S. melongena* followed by *S. insanum*, *S. torvum*and, *S. violaceum* respectively. However, the highest number of fruits per kilogram was reported in *S. violaceum.*Based on results, it could be concluded that almost all tested physical parameters were superior in *S. melongena.* However, *S. insanum*, and *S. torvum* are richer in TAC, TPC and TFC than *S. melongena*. Therefore, *S. insanum*, and *S. torvum* could be introduced as commercial crops for higher economical value and better therapeutic properties.

Keywords:*Solanum insanum, Solanum melongena, Solanum torvum, Solanum violaceum,* total antioxidant capacity

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