

Evaluation of Physicochemical Properties, Proximate Composition and Antioxidant Activity of Selected Underutilized Fruit Species

S.N. Galhenage¹, K.B. Wijesekara² and W.A.J.P. Wijesinghe³

¹Department of Science and Technology, Uva Wellassa University, Badulla, Sri Lanka

²Department of Biosystems Technology, Uva Wellassa University, Badulla, Sri Lanka

³Department of Export Agriculture, Uva Wellassa University, Badulla, Sri Lanka

Underutilized fruits are less known due to the commercialization of few, selected fruit crops. Recent studies have suggested that these underutilized fruits possess many health benefiting compounds such as cancer fighting antioxidants and phenolic compounds. However, detailed studies on underutilized local fruits to establish their usefulness as fruit crops are lacking. The main objective of this study was to determine the antioxidant activity, total phenolic content (TPC), proximate composition and physicochemical properties of four selected underutilized fruits namely, *Sonneratia caseolaris* (Kiralala), *Annona reticulata* (Weli Anoda), *Prunus persica* (Peach), and *Psidium cattleianum* (Jam Pera). All experiments were done using standard methods. Antioxidant activity was determined by using DPPH and ABTS scavenging methods. The percentage of inhibition and IC₅₀ were measured in both assays. The total phenolic content of the extracts was determined using the Folin-Ciocalteu Reactifi (FCR) method and calculated as mg Gallic acid equivalent (GAE) g⁻¹ extract. Among the analyzed fruits, maximum amount of moisture was found in *P. persica* (88.00±0.18). *P. cattleianum* showed the highest ash and fat content among the selected fruit species. The highest ascorbic acid content was found in *S. caseolaris* (0.24±0.01) while *P. persica* showed the lowest (0.06±0.001). In DPPH and ABTS assays, the lowest IC₅₀ was showed by *S. caseolaris* (40.80 µg ml⁻¹ and 99.85±3.67, respectively). The highest and the lowest phenolic contents were found in *S. caseolaris* (0.85±0.01 mg GAE g⁻¹) and *A. reticulata* (0.17±0.00289 mg GAE g⁻¹), respectively. The results indicated that *S. caseolaris* can be considered as the best fruit to consume as it contains high amount of antioxidants. All selected underutilized fruits contained appreciable amounts of compounds which could provide health benefits and could be used in food and pharmaceutical industries.

Keywords: Underutilized local fruits, Proximate analysis, Antioxidant assay, Total phenolic content.