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Antioxidant properties and proximate composition of selected industrial fruit waste in Sri Lanka

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In Sri Lankan food industry, fruits are used as one of the raw materials in production of fruit juices, jams, snacks, concentrates, canned fruit and dried fruits. During the processing of these products, peels, seeds, rinds and pulp waste (bagasse) are generated as major industrial fruit wastes (IFW) in enormous amounts. The aim of this study was to identify the availability and reusable potential of prominent Sri Lankan IFWs as a source of nutrient and antioxidant. A survey has been carried out to identify the amounts of IFWs generated in major Sri Lankan fruit processing industries and the selected IFWs were analyzed for proximate composition and antioxidant properties. The antioxidant properties were determined by analyzing the total phenolic contents (TPC) and flavonoid content (TFC). Based on the survey data, Pineapple (*Ananas comosus*), Mango (*Mangifera indica* L.), Papaya (*Carica papaya*), and Passion fruit (*Passiflora edulis*) were recognized as most prominently used fruit types in production and the average total waste percentages of these fruits are $66.8 \pm 5.9\%$ (peel $40 \pm 4\%$, bagasse $17.7 \pm 2.1\%$, crown and stem $12 \pm 2\%$), $51.3 \pm 5.7\%$ (peel $22 \pm 4\%$, seed $27 \pm 3\%$), $49 \pm 5\%$ (peel $37 \pm 3\%$, seed $11 \pm 2\%$), and $61.2 \pm 3.7\%$ (peel $52.5 \pm 4.3\%$, seed $8.75 \pm 0.64\%$), respectively. The results of selected thirteen fruit waste samples showed the average crude protein, crude fat and crude fiber contents respectively in the range of 3.1% - 25.95%, 1.60% - 25.40%, and 13.78% - 43.10%. According to the TPC and TFC data of selected IFWs highest values were respectively showed by mango seed (9.47 ± 0.21 mg GAE/1g, 21.82 ± 0.51 mg RE/1g) and mango peel (8.64 ± 0.06 mg GAE/1g, 12.64 ± 0.22 mg RE/1g). Thus, this study revealed that, mango seed and mango peel as a potential source of antioxidant while showing other IFWs can be utilized as functional ingredients or as a source of recovering bio actives due to their potential availability.

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