

Evaluation of Nutritional Potential and Composition of Peel of Pomegranate (*Punica granatum L.*) Cultivars Grown in Sri Lanka

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Pomegranate peel is a valuable waste rich with diverse range of bioactive compounds, which possesses antioxidant, cardio preventive, antimutagenic, antibacterial and antiviral activities. Apart from that, peel is believed to contain a significant level of nutritive ingredients such as minerals, organic acids, fat, protein, dietary fiber and vitamins. If the nutrient contents are significantly high that will open up a new avenue to develop a value added food product with high therapeutic and nutritional value. Nutritional composition of fruit peel can be varied depending on the cultivar, geographical and climatic factors. Hence, the study was aimed on the nutritional composition of the pomegranate peel (PP) of three Sri Lankan cultivars, named as *Nayana*, *Kalpitiya red* and *Nimali*. Fresh peels were dried in shade for 3 days, powdered and used for the analysis. Moisture content was measured by leaving the peel powder in hot air oven at 105 °C until get a constant weight. Crude proteins, crude fibers, lipids and total ash were analyzed according to the methods outlined in AOAC (2000) and carbohydrates content was determined according to FAO (1982) by difference method. Caloric value of each cultivar was calculated by the percentage sum of carbohydrates and proteins multiplied by a factor of 4 (kcal/g) and total lipids multiplied by a factor of 9 (kcal/g). All the experiments were performed in triplicate. The results showed that the crude protein, lipid, carbohydrate contents and caloric values were ranged from 3.35 ± 0.29 to $4.73 \pm 0.20\%$, from 0.67 ± 0.01 to $1.01 \pm 0.02\%$, from 68.66 ± 0.17 to $70.33 \pm 0.92\%$ and from 297.13 to 304.59 kcal/100 g dry weight, respectively. The moisture, total ash and crude fiber contents were varied from 6.02 ± 0.01 to 6.82 ± 0.02 , from 3.74 ± 0.04 to $4.55 \pm 0.06\%$ and from 13.60 ± 0.61 to $16.44 \pm 0.29\%$ respectively. The highest ash and carbohydrate contents were in the peel of *Kalpitiya red* whereas the highest crude fiber and fat contents were recorded in the peel of *Nimali*. The peel of *Nayana* cultivar had the highest protein content (4.75%), followed by the peels of *Kalpitiya red* and *Nimali* cultivars. According to the results, peels of all three cultivars, are rich with crude protein, crude fiber and total ash and carbohydrate contents and serve as a good source of energy. High amounts of total ash in peels indicate high values for mineral composition. According to the statistical analysis, all the parameters except carbohydrate content were significantly different ($p < 0.05$) among the cultivars. All these findings revealed that the PP exhibits higher nutritional potential and can be used as good ingredients in formulation of food products with numerous health benefits. Moreover, utilization of these low cost wastes may provide considerable economic benefits to food processors.

Keywords: Pomegranate peel; nutritional composition; crude fiber; total ash; crude protein

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