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Analysis of proximate composition and physicochemical properties of pineapple wastes

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Pineapple is one of the fruits widely grown in Sri Lanka. Mauritius is the main pineapple variety cultivated in Sri Lanka for local consumption and processing, however during processing around 40 – 60% of the total fruit is disposed of as waste. This study was undertaken to quantify the proximate composition and some physicochemical parameters of three types of wastes generated during pineapple processing, namely; 1st peel, 2nd peel, and core of the Mauritius variety, to identify the potential to utilize them. The selected wastes were analyzed for proximate composition (moisture, crude protein, crude fat, crude fibre, total ash, minerals and carbohydrate) on a dry basis (AOAC methods), and pH, Titratable Acidity (TA), Total Soluble Solids (TSS), pectin content, and total polyphenols were also determined. The highest moisture was found in the 2nd peel (87.37 ± 0.34 %) and was significantly different ($P < 0.05$) from the moisture content of core (84.90 ± 0.23 %). The crude protein content was highest in the 1st peel (5.04 ± 0.05 g/100 g) and was significantly different ($P < 0.05$) from the 2nd peel and core. Highest crude fat content was recorded in the 2nd peel (4.78 ± 0.53 %), and lowest in the core (2.35 ± 0.15 %). The crude fiber content of the 1st peel was the highest (42.02 ± 1.72 %) and was significantly different from the 2nd peel and the core. The carbohydrate content of core (83.03 ± 0.32 %) was the highest. There was a significant difference ($P < 0.05$) between the ash content of the 1st peel, 2nd peel and the core. Potassium was the most abundant mineral in all 3 waste types, followed by Ca, Mn and Fe. All the three wastes had an acidic pH, which was lowest in the 2nd peel (3.85 ± 0.01). TSS was highest in the 2nd peel. The highest pectin content (0.30%) and total poly phenols (341.4 ± 1.4 ppm of Gallic Acid Equivalents) were recorded in the 1st peel. Results shown that, pineapple wastes can be utilized effectively for alcoholic fermentation, polyphenol extraction and food product development based on the evaluated physicochemical properties.

Key words: pineapple, 1st peel, 2nd peel, core, physicochemical properties.

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