
Investigating the potential of using jackfruit by-product flour in producing instant pasta

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Jackfruit (*Artocarpus heterophyllus* L.) is a popular seasonal food crop grown in Sri Lanka. During the jackfruit season a huge amount of by-products are generated and they are mostly used as animal feed or ended up in land filling without any usage. Therefore, this study was conducted to investigate the potential of utilizing jackfruit by-products (core and rags; 3:1 w/w) flour in manufacturing instant pasta. Proximate composition, physico-functional properties and antioxidant properties of jackfruit by-product flour were analyzed and compared with wheat flour. Composite flour mixtures were prepared by replacing wheat flour with different percentages of jackfruit by-product flour (25%, 35% and 40% w/w). Sensory analysis was conducted to select the best pasta prepared using a composite flour mixture using 30 semi-trained panelists. Proximate composition, physical properties and shelf-life (by total plate count, pH and color) of the selected best product were analyzed. Jackfruit by-product flour showed higher water absorption ($8.77\pm 0.06\%$) and swelling capacities (46.00 ± 5.66 mL) compared to wheat flour ($1.74\pm 0.14\%$; 17.35 ± 0.21 mL, respectively) showing its potential to use in making value-added bakery products. Further, jackfruit by-product flour contained a significantly higher ($p<0.05$) amount of crude fiber ($13.00\pm 1.13\%$) compared to the wheat flour ($2.24\pm 0.23\%$). Total phenolic and flavonoid content of jackfruit by-product flour were 40.9 ± 0.02 mg GAE/100 g and 65.7 ± 0.02 mg QE/100 g, respectively. The pasta made from 25% (w/w) jackfruit by-product flour showed the highest mean rank values for all the tested sensory attributes. The developed product can be stored in Low Density Poly Ethylene (LDPE) laminated packages at ambient temperature for 6 weeks. It can be concluded that the jackfruit by-product flour can be effectively used to replace wheat flour partially in the preparation of pasta products.

Keywords: Jackfruit by-product flour, physico- functional properties, total phenolic content, sensory analysis

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