

Quality evaluation of noodles developed from composite flour mixture using passion fruit (*Passiflora edulis*) peel and kodo millet (*Paspalum scrobiculatum*)

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Passion fruit (*Passiflora edulis*) peel and Kodo millet (*Paspalum scrobiculatum*) are excellent sources of dietary fiber, minerals and bioactive compounds. However, their potential health benefits are not fully evaluated and their applications in the food industry are also low in Sri Lanka. Therefore, this study aimed to formulate composite flour noodles with passion fruit peel and Kodo millet, and evaluate their sensory, cooking quality and nutritional properties, along with conducting the storage study for 60 days. Initially, passion fruit peel and Kodo millet were dried in a cabinet dryer at 60 °C and 45°C, respectively, until a constant weight was obtained. Then, the dried samples were ground and sieved with a 250 µm mesh-sized sieve to a fine powder. After that, five formulations of composite flour noodles were prepared by incorporating different ratios of passion fruit peel flour and Kodo millet flour (T1 - 0:80, T2 - 5:75, T3 - 10:70, T4 - 15:65, and T5 - 30:50), and the balance 20% was made up with wheat flour. Sensory attributes of noodles such as appearance, texture, color, flavor, taste and overall acceptability were evaluated by using a 5-point hedonic scale test. Based on the result of the sensory analysis, T3 and T4 noodles were selected for further studies along with T1 noodles. Nutritional analysis showed that T3 and T4 had significantly higher levels of crude fiber (6.11±0.20 and 6.33±0.39%), ash (1.57±0.05 and 1.62±0.08%), total phenolic content (110.43±0.08 and 144.14±0.13 mg GAE/100 g), and antioxidant capacity (62.4±0.21 and 64.09±0.14%), respectively, compared to T1 noodles. Moreover, cooking quality analysis revealed that T3 and T4 noodles had higher values of cooking loss (7.04±0.12 and 7.34±0.23%) and swelling power (3.2±0.04 and 2.9±0.03 g/g), respectively, compared with T1. Further, storage studies of T1, T3 and T4 exhibited lower values of total plate counts (1×10^2 - 1.5×10^2 CFU/g) and no yeast and mold counts. Therefore, the present study concludes that incorporating passion fruit peel into composite flour offers a valuable and nutritious alternative for human diets, while also enhancing sustainability by reducing waste in the passion fruit industry.

Keywords: Noodles; *Paspalum scrobiculatum*; *Passiflora edulis*; quality evaluation