

## Functional properties of noodles with mango kernel flour

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The utilization of mango kernels has become an interest for food scientists as they are commonly discarded as wastes. However, studies showed that mango kernels contain beneficial bioactive components. Hence, they may be used as a functional ingredient with common food products. In this study, mango kernels were utilized into flour that was used in the formulation of noodles as a source of dietary fiber and phytonutrients. The study attempted to investigate the functional properties of noodles with different amounts of mango kernel flour (MKF). Seeds from ripe Carabao mangoes (*Mangifera indica* L.) were processed by drying, decortication, pulverization and sieving to produced MKF that was incorporated in noodles with different amounts (0%, 5%, 10%, 15%). Proximate composition and total dietary fiber content of the MKF and noodle samples were analyzed following the AOAC methods. Physicochemical properties in terms of cooking quality, color, texture and microstructure analysis were also determined. Phytonutrient content and antioxidant activity of the MKF and the noodles with the most acceptable formulation were also analyzed. Results showed that MKF is a

good source of dietary fiber (5.0 g/100g), polyphenols (6888.69±0.14 mg/100g), anthocyanidin (77.09±1.61 mg/100g), and flavonoids (55.44±0.37 mg/100g). The total dietary fiber content significantly increased as the amount of MKF in the noodles increased, 1.72 to 3.13 g/100g. In terms of the cooking quality, cooking time and water absorption decreased while cooking loss increased as the substitution of MKF in noodles increased. Uncooked noodles appeared lighter in color than cooked noodles especially the noodles with MKF. Noodles w/ 5% MKF obtained the highest tensile strength and extensibility of 0.22 N and 20.0 mm. Sensory evaluations showed that noodles with 5% MKF had no significant difference with the control and overall was highly acceptable. Furthermore, noodles with 5% MKF retained high amounts of polyphenols (892.49±5.04 mg/100 g) and showed high antioxidant activity (DPPH-91.40±0.20%; FRAP-280.46± 4.57mg/100g). Thus, mango kernels can be utilized into flour in preparation of noodles with improved nutritional properties without affecting much of the functional properties of noodles.

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