

## **Effect of different ratios of wheat flour to black bean (*Phaseolus vulgaris* L.) flour on physicochemical properties and sensory acceptability of cooked noodle**

### **ABSTRACT**

Wheat noodles are a popular staple food, and their consumption has increased worldwide due to convenience, nutritional and sensory quality, palatability as well as reasonable price. However, the refining process of wheat flour contributed to the decreasing mineral and fibre content of noodles. The present study aimed to determine the effect of different ratios of wheat flour to black bean flour on physicochemical properties and sensory acceptability of cooked noodles. Wheat flour was substituted with black bean flour at 5 levels: 0%, 5%, 10%, 15% and 20%. The cooked noodles were analyzed for proximate composition, cooking loss, colour profile and texture profile in triplicate. Sensory evaluation was carried out using an acceptance test of a 7-point hedonic scale. Proximate results showed that the ash, protein, fat and fibre content of cooked noodles had increased significantly ( $p < 0.05$ ) when the percentage of black bean flour increased. The ash content and crude fibre content of cooked noodles incorporated with 20% black bean flour were  $0.63 \pm 0.02\%$  and  $0.79 \pm 0.06\%$  respectively. The cooking loss of noodles also increased from  $3.61 \pm 0.34\%$  to  $5.16 \pm 0.51\%$  when the percentage of black bean flour increased from 0% to 20%. Although the substitution of 15-20% of black bean flour enhances the nutritional value of noodles, the sensory acceptance decreased due to the undesirable dark colour and hard texture. Therefore, this study suggested that the addition of black bean flour up to 10% is the potential to be used as a functional ingredient with promising the physical characteristics and nutritional value of the noodle without affecting their sensory quality.