

## **The effect of spinach leaf powder (*spinacia oleracea*) on the quality of dried noodle**

### **ABSTRACT**

This study has utilized the incorporation of different concentrations of spinach powder into wheat flour to produce the best formulation of dried spinach noodle based on sensory and physicochemical tests comprising of colour and texture profile analyses. F2 consists of 4g of spinach powder and was selected as the best formulation. F2 shows a better result than control in terms of significantly higher moisture ( $8.21 \pm 0.01\%$ ), ash ( $3.33 \pm 0.01\%$ ), crude protein ( $14.22 \pm 0.01\%$ ), crude fiber content ( $8.69 \pm 0.06\%$ ) and lower crude fat ( $5.46 \pm 0.05\%$ ) and carbohydrate content ( $60.09 \pm 0.13\%$ ); and also contains a significantly higher total chlorophyll content ( $24.68 \pm 0.01\text{mg/L}$ ). The F2 sample also has a lower cooking time ( $5.33 \pm 0.06$  minutes), cooking loss ( $7.43 \pm 0.13\%$ ), and swelling index ( $1.85 \pm 0.03$  ml/g), but a higher cooking weight ( $246.52 \pm 0.01\text{g}$ ) and water absorption ( $161.26 \pm 0.10\%$ ). The storage quality of the best formulation was conducted for 8 weeks and results were recorded every week. Based on the storage stability result of water activity, moisture content, and microbiological count, all of the values are within the acceptable range and are still safe for consumption. No significant difference was observed for all texture parameters of the F2 noodle upon storage. However, the colour of F2 noodle increase in lightness, greenness, and decrease in yellowness. Overall, the incorporation of spinach powder into noodles can increase the nutrient content and maintain its eating quality.