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Effect of inclusion of tigernut flour on nutritional, functional and pasting properties of wheat flour and acceptability of the plain cupcakes

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Abstract

Flour produced from tigernut (*Cyperusesculentus*)was incorporated into wheat (*Triticum sp.*) flour at different ratios (100:0 (control-A), 90:10-B, 80:20-C, 70:30-D, 60:40-E, 50:50-F; wheat-tigernut flour-WF:TNF). The flour blends were analyzed for proximate, micronutrient, functional and pasting properties using standard methods. Plain cupcakes were produced from the different blends and the control. All the products were evaluated for sensory attributes such as: colour, flavour, taste, aftertaste, mouth feel and overall acceptability. There were significant ($p<0.05$) differences in the proximate composition (%) of the flour blends (moisture; 12.21±0.23-12.37±0.27, protein; 10.30±0.05-12.16±0.16, ash; 3.57±0.21-3.78±0.70, fat; 2.11±0.12-2.67±0.20, crude fibre; 3.25±0.17-3.40±0.27 and carbohydrate; 69.70±7.76-71.93±5.63), respectively. The mineral contents of the blends (Calcium, Magnesium, Potassium and Phosphorus) increased with more tiger nut flour inclusion and functional properties: oil absorption capacity ranged from 93.18±0.24-95.00±0.0.65whereas water absorption capacity of the flour increased from 101.07±0.24-120.75±1.15, respectively. There were no significant ($p>0.05$) differences in the bulk densities of the flour blends. The pasting properties: pasting temperature (°C), final and setback viscosities (RVU) of sample F (50:50) was higher than other samples while all products cooked within seven minutes. Sample B (90:10) was highly rated among other blended products and was most overall acceptable in all sensory attributes.

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