

## **Developing Healthier Biscuit Alternatives: An Analysis of Tapioca, Desiccated Coconut, and Wheat Flour Blends**

### **ABSTRACT**

This study aimed to identify the optimal biscuit formulation using blends of tapioca flour, desiccated coconut flour and wheat flour. Four formulations, denoted as F1, F2, F3, and F4 with varying ratios of wheat flour, tapioca flour, and desiccated coconut flour (30:20:50, 30:30:40, 30:40:30, and 30:50:20 respectively), were produced. Multiple methodologies were employed to study the impact of composite flour on the quality of cookies, including sensory evaluation, proximate analysis, and physical evaluations. After a hedonic test involving 50 panelists, F3 emerged as the superior formulation. Proximate and physical analyses for F3 and the control (100% wheat flour) revealed notable differences. The proximate composition results showcased distinct differences between the best formulation (F3) and the control. F3 exhibited higher values ( $p < 0.05$ ) in moisture content ( $2.33 \pm 0.37\%$ ), crude fibre ( $4.05 \pm 0.02\%$ ), and carbohydrate content ( $65.04 \pm 0.74\%$ ) compared to the control. However, both formulations displayed similarities ( $p > 0.05$ ) in terms of spread ratio, colour, and pH, despite their differing composition in formulation. Notably, F3 surpassed the control in nutrient composition, especially in moisture, crude fibre, and carbohydrate content. In conclusion, the investigation into these blended flours has demonstrated promising outcomes, emphasising their potential to not just enhance the nutritional quality of biscuits but also elevate consumer contentment.