

**DEVELOPMENT OF GLUTEN FREE COOKIE USING TAPIOCA  
FLOUR INCORPORATED WITH PALMYRAH TUBER  
(*Borassus flabellifer* L.) FLOUR**



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## ABSTRACT

“Miracle tree” palm tree (*Borassus flabellifer*) is a traditional plant known for its numerous health benefits. Its tubers are rich in dietary fiber, which supports digestive health, and contain a significant amount of enzymes that are typically not obtained from regular food. A study was conducted to develop gluten-free cookies using locally available raw materials, specifically by incorporating tapioca flour with palmyra tuber flour. The production of gluten-free cookies involved mixing tapioca flour and palmyra tuber flour at a ratio of 95:05 (T<sub>2</sub>), 90:10 (T<sub>3</sub>), 85:15 (T<sub>4</sub>), 80:20 (T<sub>5</sub>) and control (T<sub>1</sub>) with 100% wheat flour. The other ingredients, such as margarine (50g), sugar (45g), eggs (50g), baking powder (2.5g), milk powder (10g), and vanilla (2.5g), were kept constant for all five-treatment combinations. Cookie dough relevant to the five treatment combinations was prepared and baked using a hot air oven at 180<sup>0</sup>C for 20 minutes. The gluten-free cookie containing 90% tapioca flour and 10% palmyra tuber flour (T<sub>3</sub>) received the highest acceptability in sensory evaluation (7-point hedonic scale), as assessed by 10 untrained panelists. T<sub>3</sub> was selected for further analysis with the control sample. The proximate composition of the selected gluten-free cookie (T<sub>3</sub>) was determined as follows: moisture content (9.36 ± 0.13%), ash content (1.43 ± 0.45%), crude fiber (3.56 ± 0.62%), crude protein (4.4 ± 0.03%), crude fat (3.19 ± 0.06%), and carbohydrate (78.05 ± 0.32%). Shelf-life evaluation revealed that TPC and YMC were remained within safety limits, suggesting that the selected cookies can be stored in an airtight container for approximately two weeks.

**Keywords:** Cookies, Gluten, Gluten-Free Cookies, Palmyra Tuber Flour, Tapioca Flour

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