INNOVATIVE FOOD PRODUCTS FROM SWEET SORGHUM
(SORGHUM BICOLOR L. MOENCH) FLOUR

Jonahver O. Tarlit, Jessa C. Sulquiano and Rex B. Castante

Background:
The Philippines have seen an increasing dependence on rice and wheat importation over the years. Now, we are burdened on finding an alternative supply of carbohydrate source. Sweet sorghum is eyed as a vital crop in addressing food security because of its drought-tolerance, high production yield, ease to cultivate and versatility to produce various products. Sorghum is a great source of energy, protein, phenolic compounds and is gluten free. It is cultivated in the country as source of feed and bioethanol, however it’s suitability for food application has not been fully explored.

Objectives:
The project aimed to develop four products utilizing sorghum flour as main ingredient. Specifically it aimed to determine the physico-chemical properties, microbiological properties, nutrient content, sensory acceptability and shelf-life of the food products developed.

Materials and Methods:
Four products were developed utilizing sorghum flour: Rice-Shaped Kernel (RSK), Pasta Noodles (PN), Extruded Snack Food (ESF) and Biscuits (B). The RSK and PN were produced using indirect-expansion extrusion technology and the process optimization was carried out through variations in flour mixture moisture content, barrel temperature and product formulation. ESF was produced using direct-expansion extrusion and the process was also optimized through variations in flour mixture moisture content, barrel temperature and product formulation. Biscuits were produced using usual baking methods and product formulation is optimized. All samples were analysed for physico-chemical properties, microbiological properties, nutrient content and sensory evaluation using 9-point hedonic scale.

Results and Findings:
Results showed that the physico-chemical properties and microbiological load of RSK, PN, ESF and Biscuits complied with the Codex standard of each product category and is safe for human consumption. For sensory acceptability, RSK, PN (plain) and ESF received a “like moderately” rating, PN (with sauce) and Biscuits received a “like very much” rating. The nutritional content of the products developed are comparable with products existing on the market with higher amount of dietary fiber (RSK:7.0g; PN:10.8g; ESF:3.3g; B:8.0g), protein (RSK:9.0g; PN:9.0g; ESF:10.0g; B:8.0g), and iron (RSK:1.9mg; PN:6.66mg; ESF:3.3mg; B:1.4mg). Results of the shelf-life study of the products showed that the RSK and PN are shelf-stable for 9 months, whereas ESF and Biscuits are shelf-stable for 6 months.

Conclusion and Recommendation:
The research findings affirm that sorghum flour is a suitable raw material for the development of rice-shaped kernel, pasta noodles, biscuit, and snack food. For future research, the development of other nutritious food products using sorghum flour is recommended.