

## Formulation, Physicochemical and Cooking Properties of Water Yam, Yellow Maize and African Yam Extrudate

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### Statement of the problem:

Many convenience foods in the Nigerian market are nutritionally poor apart from their processing methods that are not only laborious, costly and energy intensive but are also inefficient in producing one single enriched product in form of noodles.

The purpose of the study was to formulate and evaluate the physicochemical and cooking properties of water yam, yellow maize and African yam bean based extrudate. Materials and methods: Composite flour was prepared using water yam, yellow maize and African yam bean, then formulated and extruded by single screw extruder of varying barrel temperature, feed moisture content and screw speed. Data were analyzed by design expert version findings: Protein content ranged from 12.40 to 22.16%; fat content ranged from 2.90 to 6.07% fibre content ranged from 1.80 to 2.52%; ash content ranged from 6.21 to 9.50%; moisture read food science and technology with specialization in food chemistry and analysis he has passion for new product development his research

interest primarily focuses on roots, cereal pulses and spices. content ranged from 11.05 to 12.47% and carbohydrate content ranged from 48.31 to 63.65%; Also, bulk density ranged from 0.41 to 0.90 g/g; water solubility index ranged from 4.41 to 6.36g/g; water desorption capacity ranged from 2.05 to 0.66%; and expansion ratio ranged from 1.63 to 3.81.0. Furthermore, the value of water uptake varied from 0.20 to 2ml, cooking loss varied from 5.2 to 10% and cooking time ranged from 5 to 9.80min. Died during initial hospitalization, were known to have died within 30 days of discharge without readmission, or were.

### Conclusion and significance:

Barred temperature, moisture content and screw speed of the extruder significantly affected the physicochemical and cooking properties of the snack. Recommendations are made for producers to scale up the process and product toward winning the battle against protein-energy malnutrition in developing countries.