## A novel delivery mechanism for nutrition using sorghum based extruded pre-cooked ‘beans’

**Statement of Problem:**

Inspite of general worldwide reduction in global poverty, food security and nutrition in Africa is getting worse and has caused immense loss of lives and livelihood in the past decade. Legumes, including beans, have been a major contributor of protein and calories in this part of the world. The present study was conducted to demonstrate a novel and effective nutrient delivery mechanism using alternate food crop-sorghum to produce a partially pre-cooked ‘bean’. The product, also called as ‘bean analog’ is primarily targeted as a food aid commodity where its nutritional composition can be engineered to meet nutritional requirements to alleviate malnutrition and to overcome natural disadvantages associated with consumption of natural beans. The study will help in characterizing the physicochemical properties of bean analog, understand the changes in thermal characteristics and digestibility of flour blends after extrusion and acceptability amongst the target consumers.

## Goals:

- Demonstrate a novel nutrient delivery mechanism using sorghum based extruded pre-cooked 'beans'.
- To characterize the product and standardize the cooking time for attaining textural and nutritional profile similar to navy beans.
- To study the thermal modifications in starch & protein of flour blends due to extrusion.
- Analyze the effect of extrusion on digestibility of flour blends.
- Conduct a sensory analysis and consumer acceptance study.

## Current Activities:

- Review of literature for properties of flour blends after being subjected to processing, and effect of extrusion on digestibility of flour blends.
- DSC & RVA analysis of raw and extruded flour blends.
- Training of Trainers for consumer acceptability study in Mozambique.
- Interpreting the descriptive sensory analysis data.

## Recent Publications:

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## Recent Publications:


**Cooperator:**

Brian Plattner
Wenger Manufacturing Inc.

Akinbode Adedeji
Post-doc (Extrusion lab)

**Graduate Student:**

Michael Joseph

**Dr. Sajid Alavi - Project Leader**