**Title:**

# Development of Extruded Complementary Foods from Blends of Acha and Cowpea Flours

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**Abstract:** (Your abstract must use **Normal style** and must fit in this box. Your abstract should be no longer than 300 words. The box will 'expand' over 2 pages as you add text/diagrams into it.)

**Introduction**

Despite the fact that a variety of improved traditional African complementary foods have been developed from cereal-legume blends (1,2), the traditional products that are a leading cause of protein-energy malnutrition, still remain the primary weaning foods, especially in rural communities, largely because of the high cost of improved complementary foods. The ingredients for low-cost complementary foods must be derived from dietary staples available and affordable in the region of interest (3) and the technology must be simple and relatively inexpensive. This paper reports the development of extruded complementary foods from blends of acha (fonio), probably Africa's oldest cereal, and cowpea, by extrusion cooking.

**Methods**

Blends of acha and cowpea flours in ratios of 50:50, 60:40 and 70:30 (w/w) conditioned to 22% moisture containing 5% vegetable oil were extruded at 140°C in a single screw extruder (Insta Pro 600 Jr) with 10.01 cm barrel bore diameter, 12.5 cm screw length, 9.01 cm screw diameter and 8.27 cm die opening. Proximate composition of milled extrudates was determined by AOAC methods (4) and protein quality by rat feeding studies.

**Results**

Table 1. Percent chemical composition and protein quality of complementary foods made from blends of acha and cowpea

| *Foods made from:* | *Moisture* | *Protein* | *Fat* | *CHO* | *Ash* | *FER* | *PER* | *NPR* |
|---|---|---|---|---|---|---|---|---|
| 50% acha/ 50% cowpea | 13.7 | 20.3 | 7.1 | 68.1 | 3.9 | 0.28 | 2.13 | 2.40 |
| 60% acha/ 40% cowpea | 12.8 | 18.9 | 6.9 | 70.5 | 3.7 | 0.33 | 2.05 | 2.38 |
| 70% acha/ 30% cowpea | 10.3 | 16.5 | 7.3 | 72.1 | 3.5 | 0.25 | 2.16 | 2.33 |

**Discussion**

Protein (16.5-20.3 %) and fat (6.9-7.3 %) contents of the products were generally within internationally acceptable standards for complementary foods (5). The protein quality of the foods was acceptable although lower than casein diet (PER 2.50, NPR 2.77). Extrusion cooking offers good prospects for production of low-cost, good quality complementary foods from acha-cowpea flour blends.

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