

Digestibility and Antinutrient Properties of Acidified and Extruded Maize–Finger Millet Blend in the Production of *Uji*

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Abstract

Lactic and citric acids were used as alternatives to backslop fermentation in the manufacture of extruded *uji* (a thin porridge from eastern Africa). Acidity of the blends was reduced by fermentation or progressively lowered with 0.1, 0.5 and 1.0 mol/l lactic or citric acids before extrusion. The absence of ethanol soluble starch in the extrudates indicated that extrusion solubilizes starch without formation of maltodextrins. In vitro starch digestibility increased from 20 mg maltose/g starch in the raw blend to about 200 mg/g after extrusion. Extrusion reduced total dietary fibre by 39–68%, redistributed soluble to insoluble fibre ratios and had a negligible effect on the formation of resistant starch (less than 1 g/100 g). In vitro protein digestibility increased after fermentation or acid treatment followed by extrusion. Nitrogen solubility index decreased by 40–50% when the unfermented, lactic or citric acid treated blends were extruded, but increased by 20% when the blend was fermented before extrusion. Amino acid analysis showed that histidine, lysine and arginine contents were lowest in the fermented-extruded blends. Tannin content decreased from 1677 mg/100 g in the raw blend to between 551 and 1093 mg/100 g in the extrudates whereas phytate content remained unaffected by extrusion (248–286)

Keywords

Digestibility and antinutrient, acidified and extruded maize–finger, millet blend , *uji*