

# **Production of High Energy Density Fermented *Uji* using a Commercial Alpha-Amylase or by Single-Screw Extrusion**

## **Authors**

Calvin Onyango , Thomas Henle , Thea Hofmann , Thomas Bley

## **Abstract**

The effects of alpha-amylase and extrusion on the viscosity and energy density of *uji*, a spontaneously fermented thin porridge from different combinations of maize, finger millet, sorghum and cassava, were investigated. Fermentation alone was not able to reduce the viscosity of *uji*, but addition of 0.1–2.1 ml/100 ml alpha-amylase to the fermented slurry or extrusion of the fermented and dried flour at 150–180°C and a screw speed of 200 rpm reduced the viscosity of 20 g/100 ml *uji* from 6000–7000 to 1000–2000 cP, measured at 40°C and a shear rate of 50 s<sup>-1</sup>. The amount of flour required to make *uji* could thus be increased by a factor of 2.0–2.5 and consequently it was possible to produce *uji* with acceptable energy densities (0.6–0.8 kcal/g) for child feeding.

## **Keywords.**

fermented *uji* , commercial alpha-amylase ,single-screw extrusion