Effects of hydrocolloids (Arabic gum and Maltodextrin) on the production of fast millet and sorghum based “arraw”

Abdoulaye Sène1, Cheikh Ndiaye1, Djibril Traoré1, Bruce Hamaker2, Mario Ferruzzi3, Matar Seck4
1Institut de Technologie Alimentaire, Dakar, Senegal, P.B. 2765
2Department of Food, Bioprocessing and Nutrition Sciences, North Carolina State University,
3Department of Food Science, Purdue University, 47807,
4Doctoral School, department of Chemistry, Cheikh Anta Diop University

Abstract
Rolled flour or “arraw” from millet or sorghum is a traditional product consumed into porridges with 37 min cooking time reducing competitiveness. The objective of this study was to examine the effects of hydrocolloids on the production of fast millet-based “arraw” before applying on the sorghum based.

Introduction
Cereals are the most important food source in the world, both for human and animal consumption. For many developing countries, cereals represents the mainstay of the diet of generally low-income rural populations [1]. In Senegal, millet and sorghum are mostly used in rural areas as food based composition in various dishes such as couscous, porridge, “thiacy”, broken bread [2]. Rolled flour or “arraw” from millet or sorghum is a traditional product consumed into porridges with 37 min cooking time reducing competitiveness. From 37 min without any treatment, the cooking time was reduced to 9 min (for 2 mm diameter “arraw”) using 5 or 10% incorporation of malted millet flour [3].

Thus, to boost the consumption of rolled flour from millet and sorghum, reducing the cooking time is necessary for more convenient and competitive to consumers especially in urban areas.

The objective of this study was to investigate the effects of hydrocolloids on the production of fast millet-based “arraw” before applying on the sorghum based.

Materiel et methods
Preparation of Extruded Flour. Decorticated (DC) millet (10,2%) and adjusted to ~26% moisture prior to extrusion (MODEL 900 rpm; Final Temp = 110-121,1°C).

Millet purchased from Free Work Services, a potential supplier to ITA Soluble atomized gum Arabic (Acacia Senegal) produced by the Cannonone laboratory of Valdafrne Maltodextrin, ED17.9 provided by SEN-ALIM.

Results
Water solubility and water absorption indexes showed higher values compared to traditional Flour. Thus it would be important on preparing The rolled flour products on Arraw.

Conclusion and perspectives
Fast cooking rolled flours called “Arraw” made from millet or sorghum are an innovation in cereal processing. Optimization tests are being studied in order to give this new product all the desirable and required food product characteristics.

References