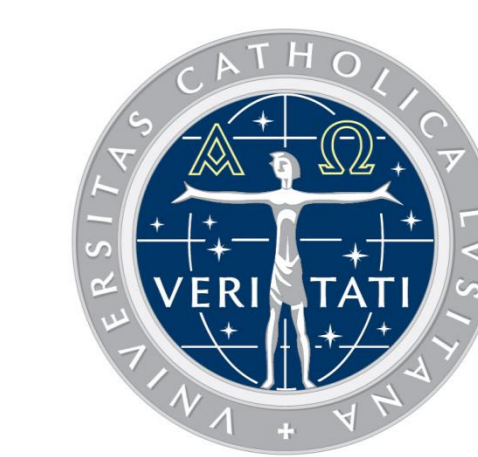


Food safety evaluation for cassava (*Manihot esculenta crantz*) and yam (*Discorea spp.*) processors in Nigeria



CATÓLICA
PORTO
BIOTECNOLOGIA

V. Ferraro ¹, C. Piccirillo ¹, L. Sanni ², A. Obadina ², K. Tomlins ³, M. Pintado ¹

1: CBQF/ESB, Universidade Católica Portuguesa, Porto, PORTUGAL

2: FUNAAB, Abeokuta, NIGERIA

3: NRI, University of Greenwich, London, UNITED KINGDOM

Introduction

Cassava (*Manihot esculenta crantz*, also known as manioc, mandioca or yucca) is one of the leading food and feed plants in the world: it ranks fourth among staple crops, after rice, sugar and corn/maize, providing energy for more than 2 billion people in the tropics, and with a global production of about 160 millions ton/year. Yam (*Discorea spp.*) is a valuable source of carbohydrate for people of the tropical and subtropical Africa, Central and Southern America, parts of Asia, the Caribbean and Pacific Islands, with a global annual production of 90 millions ton. In Africa, it is the second most important crop after cassava with Nigeria as the largest producer in the World. Different foodstuffs are derived from these crops; they are produced and sold either by households or Small-Medium Enterprises (SME). However, there are noticeable differences in food safety awareness depending on the production level.

Objectives

The objective of this research was a baseline assessment of food safety for cassava and yam derived foodstuffs produced at household and SME levels in Nigeria. Each derived product was assessed by prerequisites and by the risk analysis tools, in order to identify hazard points, preventive measures and critical control points (CCP) all over the production chain. Several cassava and yam derived foodstuffs were surveyed; more exactly, *gari*, *lafun*, wet and dry *fufu*, and *high quality cassava flour* (HQCF) for cassava and *gbodo* (dried yam chips), *elubo* (yam flour) and *parboiled yam for yam*. This study was carried out under the **GRATITUDE-FP7** (*Gain from losses of Root and Tubers crops*) project.

Methods and Results

To evaluate the food safety, a representative number of **cassava** and **yam** processors were surveyed; total 62 enterprises were inquired, namely 60 households and 2 SMEs.

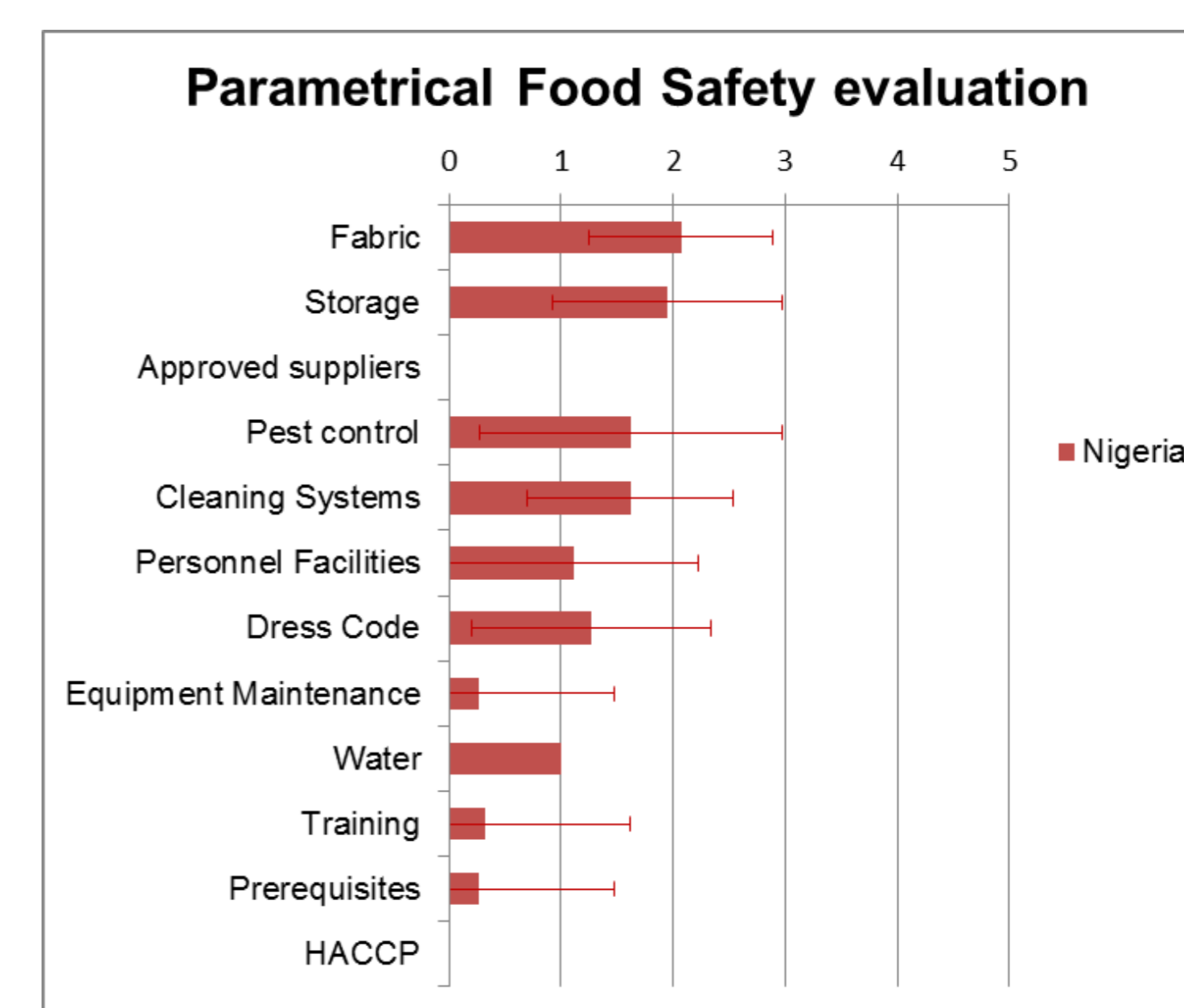
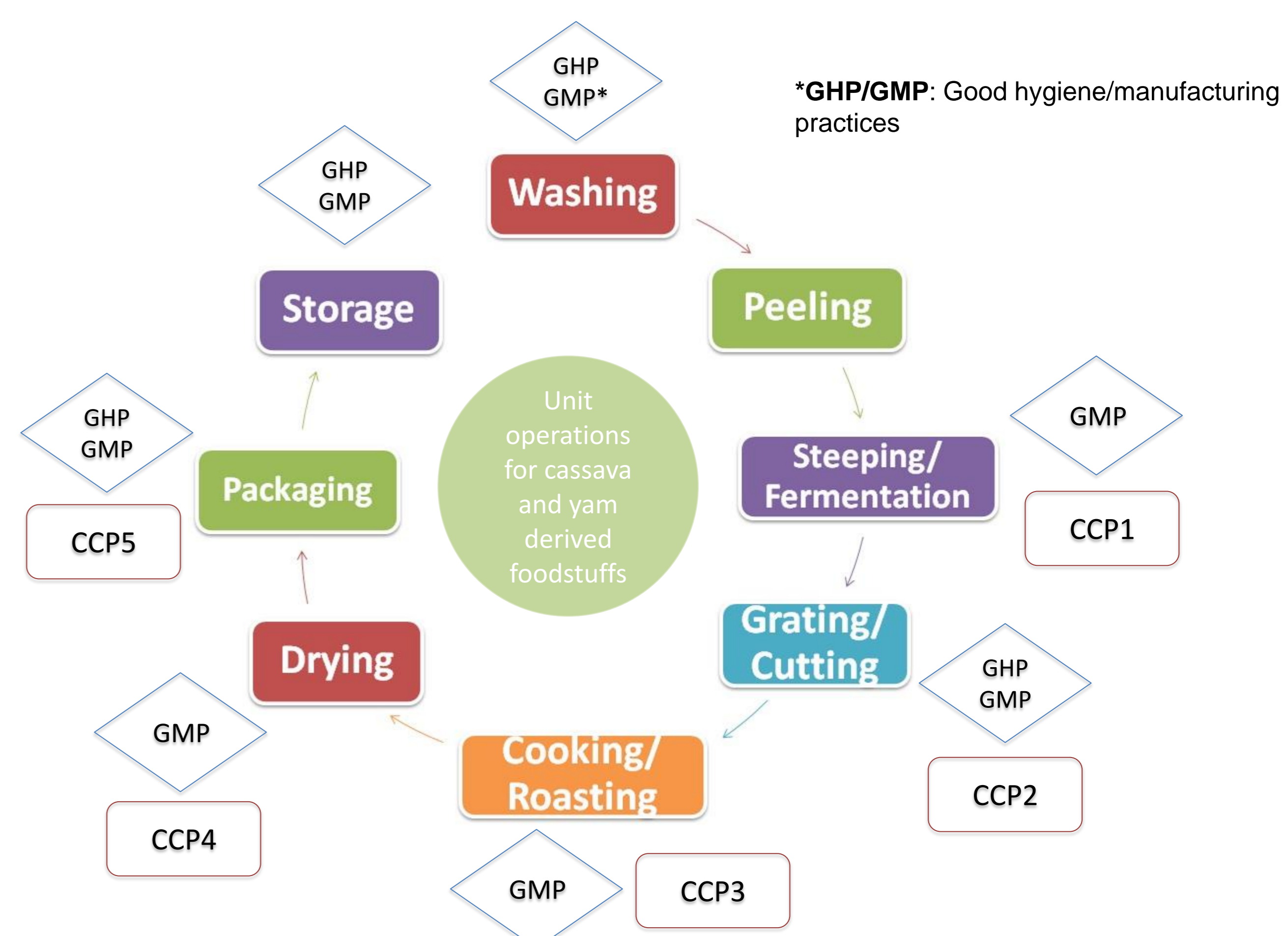
Different cassava and yam derived foodstuffs were found depending on the production scale. Traditional foodstuffs are more common among household enterprises while industrial foodstuffs are mainly produced at the SME level.



Potential hazards identified along the production chain:

- Cyanides → from cassava peel
- Heavy metals → from soil, water and environment
- Pesticides → from soil, water and environment
- Vegetative pathogens → from fermentation water and handling
- Mold → from fermentation
- Microbial contamination → from packaging and environment

Preventive measure and critical control points (CCP) were also identified :



Conclusions

- The food safety baseline assessment for cassava and yam derived foodstuffs showed a complex and varied picture.
- Overall, there is a much higher level of awareness for food safety in SME producers than in households, although some safety practices are already identified at this level.
- For production at household level, often there is no real implementation of food safety legislations/precautions. Indeed, in the majority of cases, food operators are not trained in food safety, the production area is closed to the living area due to limited land and minimal investment capital; consequently the layout of the production line may not conform to appropriate prerequisite program for food safety.

Future Work

- Future work will focused on a proper training in food safety to the people involved in the cassava and yam processing, especially the ones in households.
- A "guide" on safe food production will be compiled; this would mean to decide a specific set of rules that should be followed in each production process.

Acknowledgements:
Adegunwa, M. O, Omohimi, C. I. Adebawale, A. A., Nigeria



6th-8th December, 2013
Aveiro, Portugal