FTER

CONGRÈS

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African food tradition revisited by research

Reengineering of the smoking of kitoza, a traditional Malagasy meat product

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Introduction

Kitoza is a Malagasy traditional meat product previously dedicated to kings and nobles. It is made of beef or pork strips, 20 to 50 cm long and 2 to 4 cm wide, prepared from filet or thin slice. Meat strips are salted then sun-dried and/or smoked. Kitoza has not been subjected to extensive studies before AFTER project. The smoking step can lead to contamination by polycyclic aromatic hydrocarbons (PAH) which are carcinogenic compounds. Among them, Benzo(a)pyrene (BaP) is a good indicator of carcinogenic compound contamination of cooked and smoked meat products. At the end of the smoking process, the BaP content in kitoza was found to be higher than the 2µg/kg european standard in 15 smoked kitoza samples among the 31 analyzed from local producers.

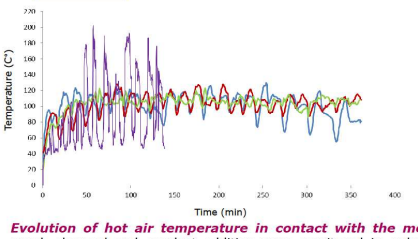
The aim of this study was to improve the smoking process of kitoza by adjusting the smoking parameters (duration, temperature, using of sawdust and charcoal). The final objective is to improve quality and safety of the products so as to find out new local and international (European) market opportunities.

Smoking unit

Methodology

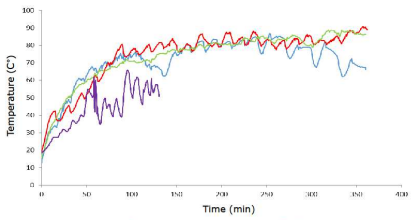
Pork ham strips were used and smoked either with wood or a combination of charcoal and sawdust. Kinetics of hot air and food core temperatures, together with water, BaP and phenol content were established. Results were reported by comparison with those obtained during a previous characterization of a Malagasy producer process.

Results

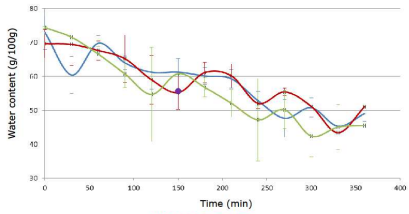


Evolution of hot air temperature in contact with the meat: wood, charcoal and sawdust addition were monitored in order to obtain attack temperature of 100°C which is the mean temperature of the Malagasy producer process.

Kitoza in the smoking unit

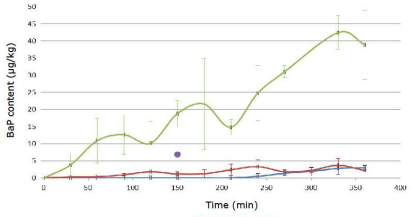


Core temperature evolution

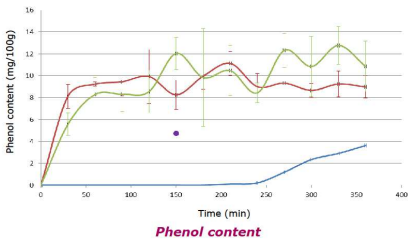


Water content

Smoked kitoza



BaP content



Phenol content

Legend

- charcoal-sawdust (4h – 2h)
- sawdust-charcoal (2h – 4h)
- wood
- Malagasy producer

Conclusion

Results show that compared to smoking with wood, the separation of unit operations of cooking/drying with charcoal and smoking with sawdust allow similar decrease of water content with lower BAP content increase. The increase of phenol content is lower when cooking/drying with charcoal precedes smoking with sawdust. Cooking/drying with charcoal at 100°C during 4h and smoking with sawdust at 100°C during 2h allows to obtain water content and phenol content similar to the traditional product with a BAP content that remains around the european standard.

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