

Proposal for Oral Presentation

**Biological bar-code for the determination of geographical origin of fruits by using 28S rDNA
fingerprinting of fungal communities by PCR-DGGE: An application to Shea tree fruits**

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Theme: *Food Authenticity*

Abstract

Introduction: International trade intensifies and extends to the entire planet. The foodstuffs are often consumed far from their zone of production. The consumer is more and more demanding and sensitive to the quality and the origin of the foodstuffs. For long time the food industry has used simple traceability systems (El Sheikha et al., 2009) In view of the difficulties of installing these documentary systems in developing country, in particular the countries of sub-Saharan Africa, the new strategies of traceability emerge. Among the new tools of tracing the products of vegetable origin, a “biological code bar” based on the analysis of the DNA of micro-organisms present on the fruits is an interesting tool. Regarding Shea tree fruits, only seven countries have statistics. Nigeria accounts for more than 60% of the production of Shea butter in 2005. It is followed by Mali, Ghana and Burkina Faso, which together account for just under a third of world production in 2005 (FAOSTAT, 2007). In Europe, Shea butter is used mainly (95%) by the chocolate industry. The quantities exported to Japan, the United States or Switzerland would be mainly used for cosmetic or pharmacological (UNCTAD, 2001).

Purpose: A molecular technique employing 28S rDNA profiles generated by PCR-DGGE was used to detect the variation in fungal community structures of Shea tree fruit (*Vitellaria paradoxa*) from Ghana, Senegal, Mali and Cameroon.

Results: When the 28S rDNA profiles were analyzed by multivariate analysis, distinct microbial communities were detected. The band profiles of Shea tree fruit fungi from different countries were specific for each location and could be used as a bar code to discriminate the origin of the fruits.

Significance of study: This method is a new traceability tool which provides fruit products with a unique biological bar code and makes it possible to trace back the fruits to their original location.

Keywords: traceability, PCR-DGGE, geographical origin

References

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