

Oral Presentation

Determination of the geographical origin of fruits by using 26S rDNA fingerprinting of yeast communities by PCR-DGGE: An application to Shea tree fruits

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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. 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 emergent. 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. 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 (FAOSTAT, 2007).

Purpose: A molecular technique employing 26S rDNA profiles generated by PCR-DGGE was used to detect the variation in yeast community structures of Shea tree fruit (*Vitellaria paradoxa*) from Senegal, Ghana and Mali.

Results: When the 26S rDNA profiles were analyzed by multivariate analysis, distinct microbial communities were detected. The band profiles of Shea tree fruit yeasts 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 paper: 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; Shea tree fruits; yeast communities; geographical origin