

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

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Abstract

Aims: The economic importance of Shea tree fruits has been rising and achieving a great success in African, American, European markets. 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). The traceability of fruits is only documentary. In case of doubt or fraud, no standardized analysis makes it possible to trace back the origin of the fruit. The aim of this study is to use a new tool of tracing the products (PCR-DGGE) as a molecular technique to analyse in a unique step all the yeasts present on the fruit to create the linkage between yeast communities and the geographical origin.

Methods and Results: A method of yeast ecology, the PCR-DGGE, was used to characterize the yeast flora of Shea tree fruit (*Vitellaria paradoxa*) from four countries (Ghana, Senegal, Mali, Cameroon). DGGE fingerprints analysed by multivariate analysis permitted to distinct microbial different fruit origin by their communities.

Conclusion: the fingerprints of Shea tree fruit yeasts were specific for each country and could be used as a unique biological bar code to discriminate the country of origin of fruits.

Significance of Study: A better knowledge of the new traceability tool by using 26S rDNA fingerprinting of yeasts that provides the fruits in general and Shea tree fruits in particular with a unique bar code for each country.

Keywords: traceability; PCR-DGGE; Shea tree fruits; 26S rDNA fingerprinting; geographical origin