Application of PCR-DGGE in Determining Geographical Origin of Fruits
Cases Studies of Physalis and Shea Tree Fruits

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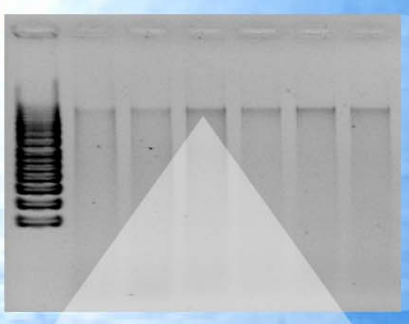
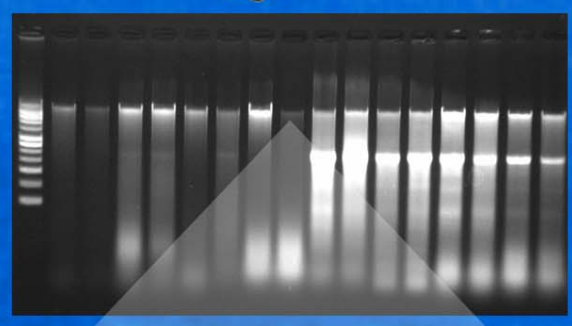
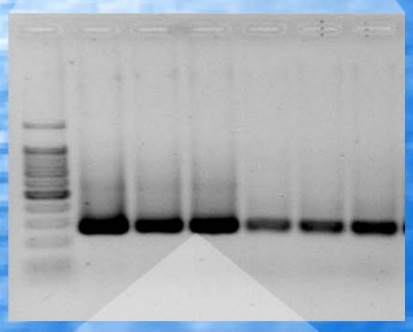
Traceability is the capacity to find the history, use or origin of food. There are no existing analytical methods which permit to determine the geographical origin of food or follow them during international trade. **PCR-DGGE** is a molecular biology technique (**new traceability tool**) that permit to link microbial communities to the geographical origin in a **very short time** with a **unique biological bar code**. **Our new method** PCR-DGGE will permit to certify the fruit origin, **Physalis and Shea tree** fruits by using **26S rDNA fingerprinting of yeasts**.

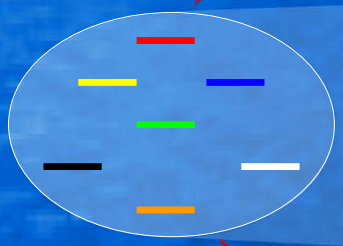
Physalis & Shea tree fruits are included in the priority list of many governments' fruits export plan, due to achieving a great success in local and European markets. **Colombia** exports of **Physalis** in 2004 were worth **14 million USD**. The annual consumption of **Shea butter** in **Europe** (**40.000-60.000 tons**), mainly used (**95%**) by the **chocolate industry** but in **Japan, USA and Switzerland** would be intended for **pharmaceutical or cosmetic use**.



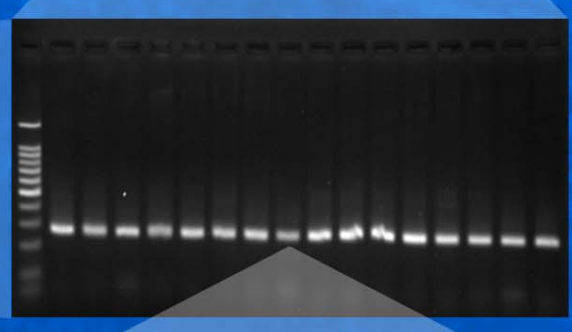
Total DNA extraction including a mixture of yeast DNA from different species

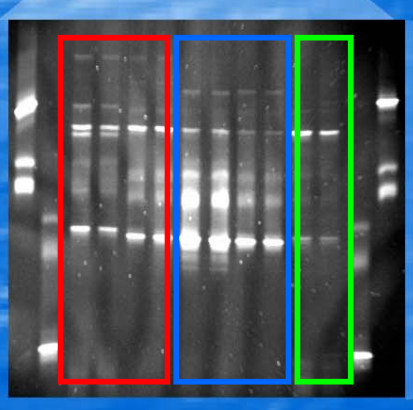




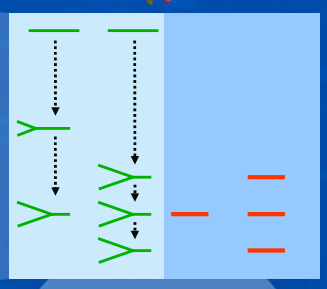


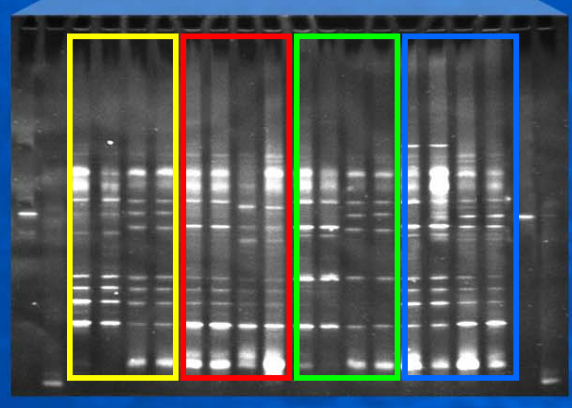
PCR amplification of 26S rDNA by universal primers. The amplicons have the same size (250 bp) but different sequences

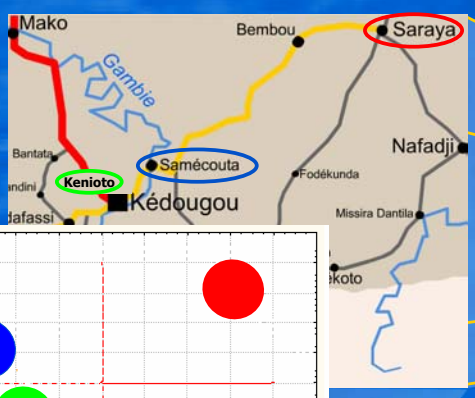




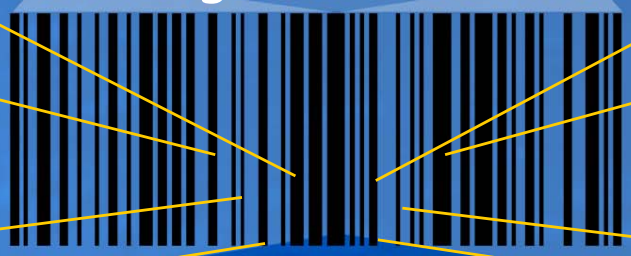
Separation of different DNA sequences by DGGE that permit to link yeast communities to geographical origins

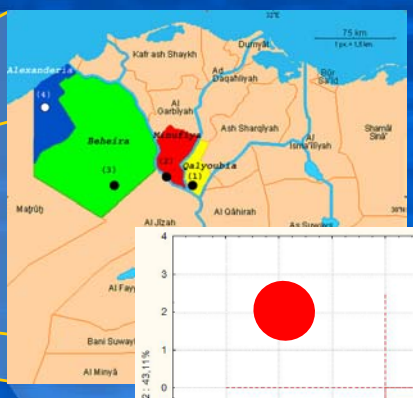


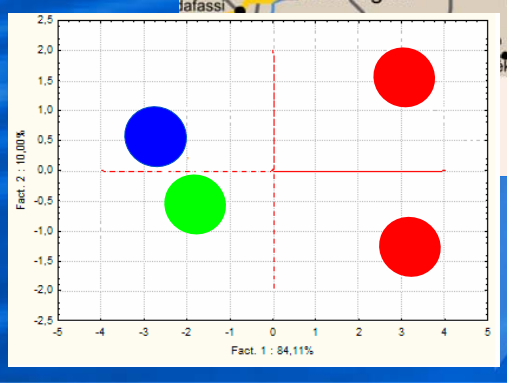


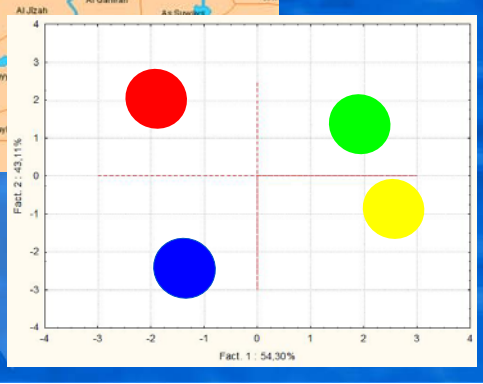


Biological Bar Code









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