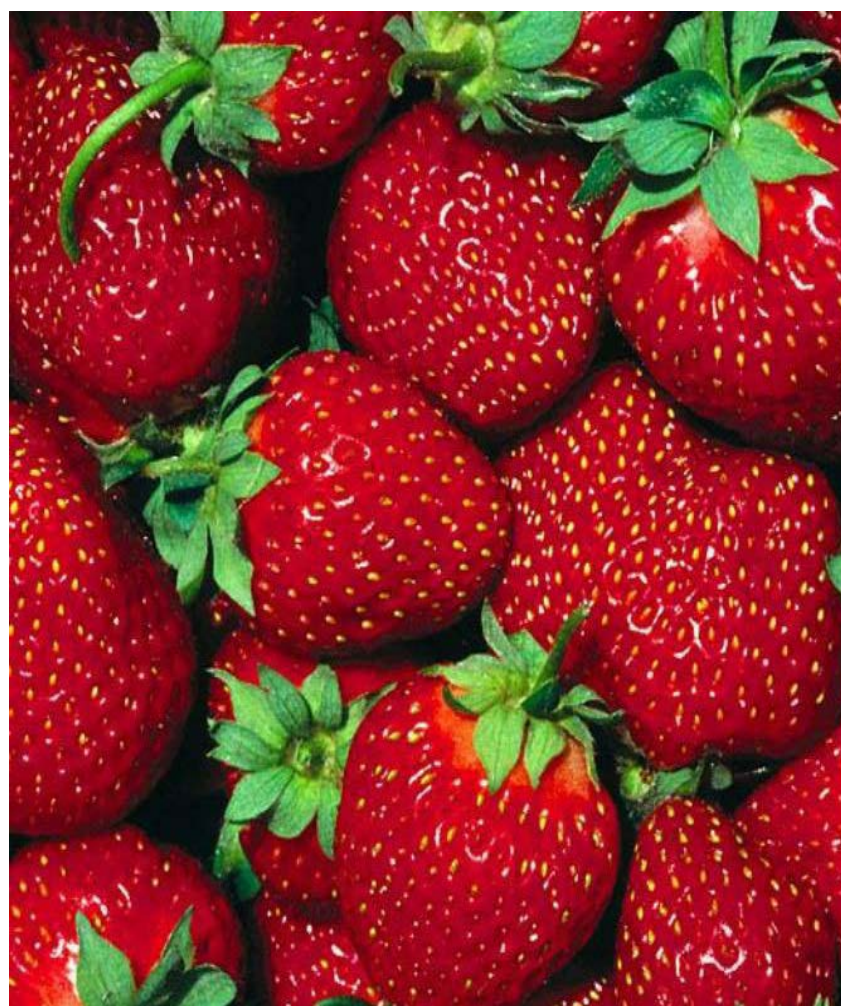


Introduction:



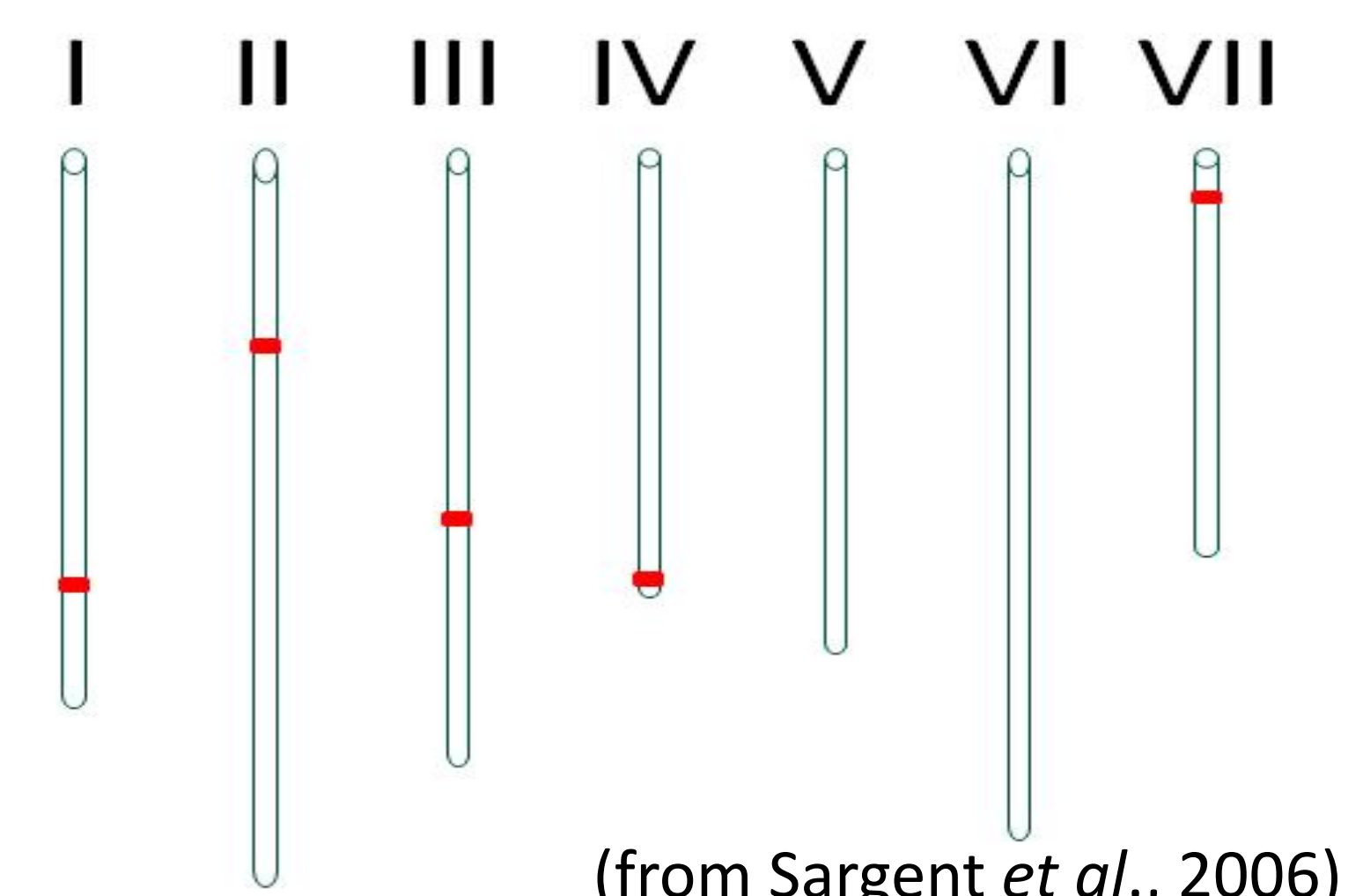
The cultivated strawberry, *Fragaria x ananassa*, is the most economically important soft fruit species because of its production of large berries that are grown primarily for the dessert-fruit market. It belongs to the Rosaceae, a large and diverse

family that also includes *Malus*, *Prunus*, *Rubus*, *Pyrus* and many ornamental species including the genus *Rosa*.

The aim of this work was to develop an easy and reliable molecular tool to characterize the cultivated strawberry varieties.

Selection of molecular markers:

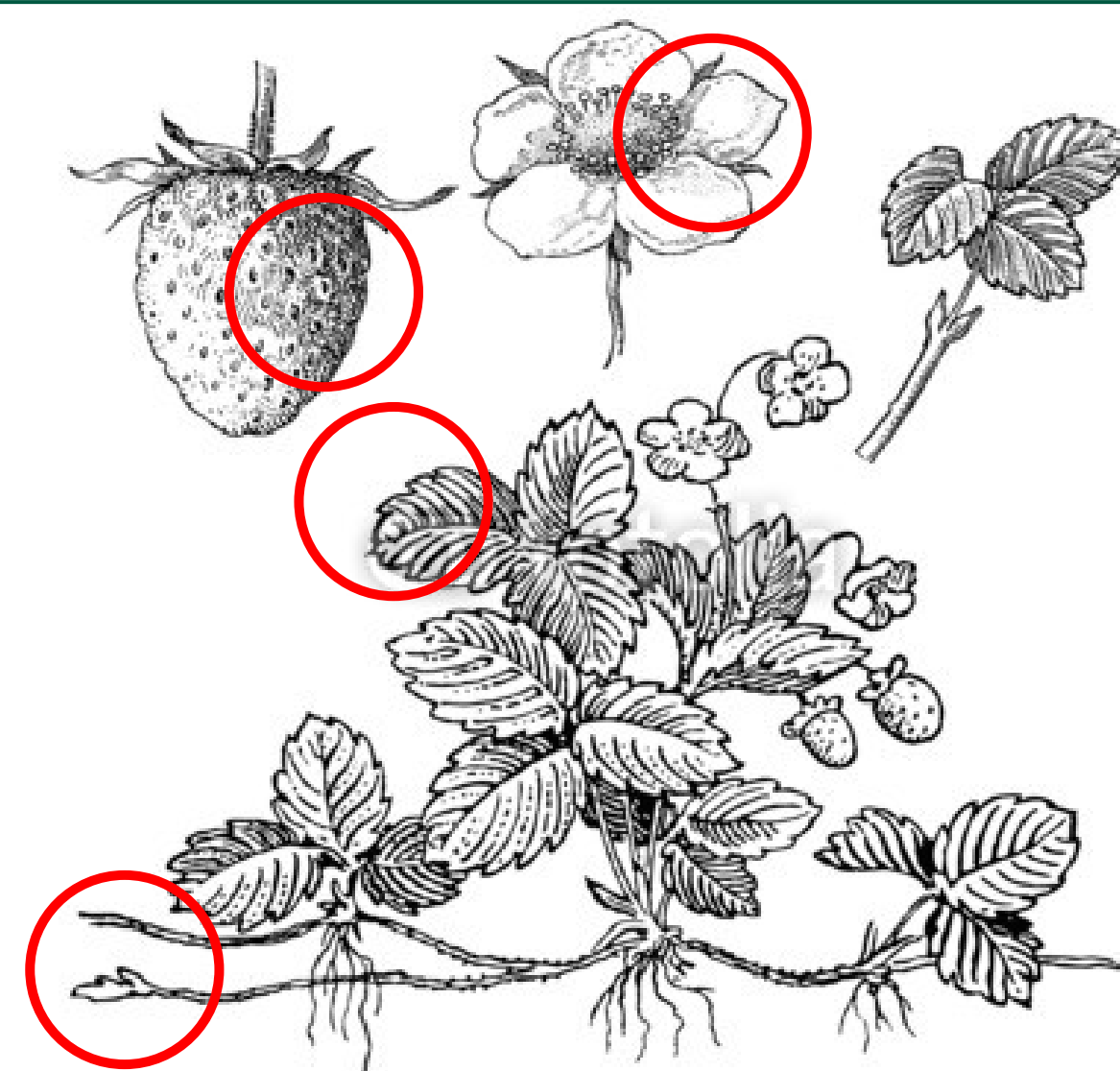
A set of 10 SSR markers was found out from the literature and are publicly available. The SSR markers were first tested on a subset of the French collection of *Fragaria x ananassa* varieties. Then, SSR markers were selected in order to discriminate the french varieties of the cultivated strawberry and to span its genome. Finally, 5 SSR markers are sufficient to respond to this criteria.



(from Sargent et al., 2006)

DNA Isolation:

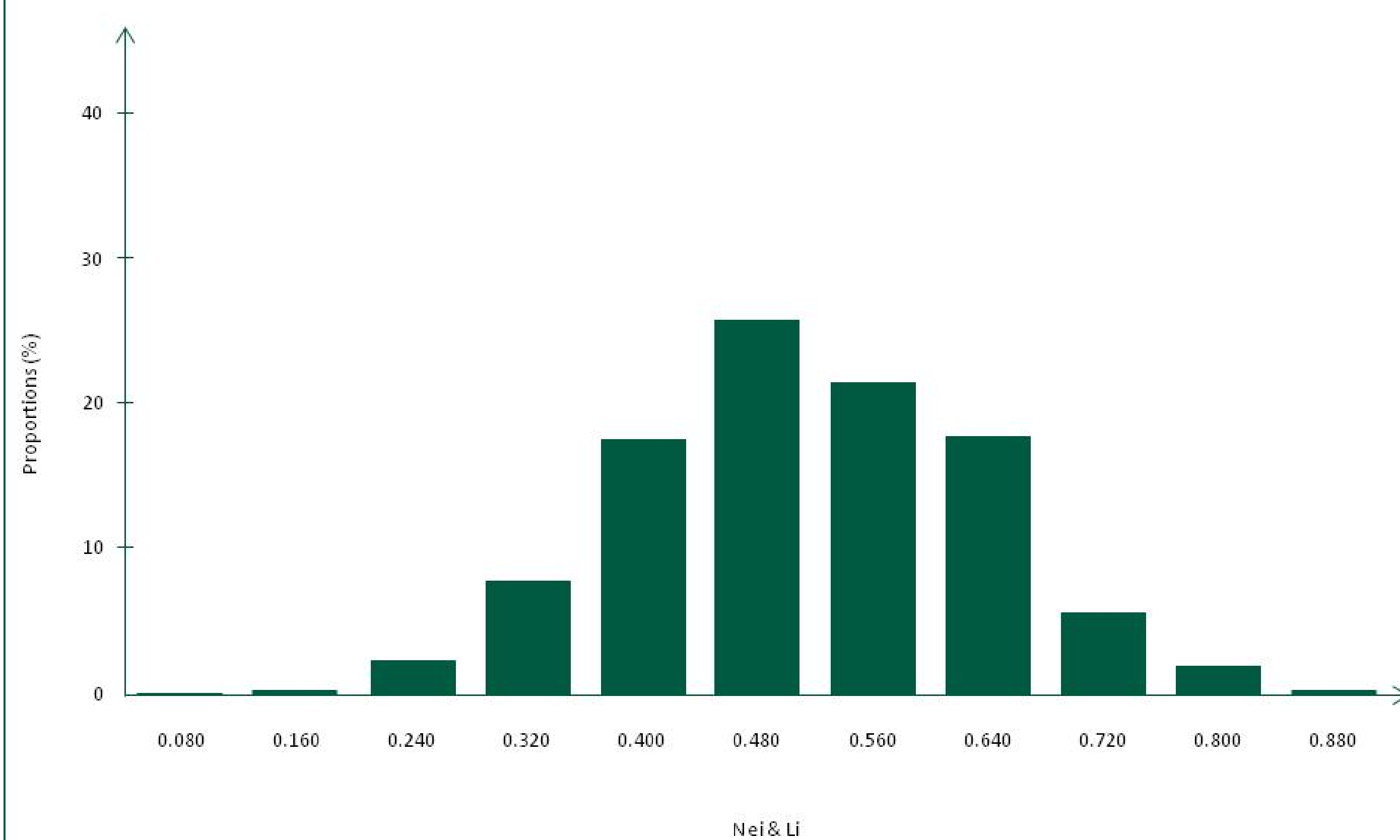
DNA can be extracted from a large number of strawberry organs: Fruit, flower, runner, leaf, germplasm form in vitro culture



PCR amplification, multiplexing and revelation:

SSR are amplified using an optimized touchdown PCR program, with the tailed primer strategy. Markers can be multiplexed either in PCR reaction or in electrophoresis. Revelation is carried out with a multy capillary sequencer.

Genetic polymorphism:



	Min	Max	Average
Alleles / SSR	6	19	13
PIC value	0.03	0.50	0.29

The characteristics of the SSR markers were determined using the genotyping data from the French varieties of the cultivated strawberry. A large number of alleles is observed for each marker as well as a high PIC value. The genetic distances between individuals vary between 0.080 and 0.880. It follows that there is a genetic diversity at the molecular level between 61 samples studied.

Conclusion and Perspectives :

The molecular characterization developed in BioGEVES using 5 SSRs marker is currently used to manage the maintenance control of the collection in the GEVES.

The same molecular strategy could be used during the germplasms multiplication and production as a certification tool or to support breeders for variety protection.