3rd International Group for Genetic Improvement of Cocoa (INGENIC) International Workshop on the New Technologies and Cocoa Breeding

INGENIC

16 - 17 October 2000
Kota Kinabalu, Sabah, Malaysia

ABSTRACTS
Use of microsatellites for identification and genome analysis of cocoa genotypes

A-M Risterucci, D. Fargeas and C. Lanaud
CIRAD, Montpellier, France

The development and application of molecular genetic markers provide the opportunity to establish and evaluate measures of quality for genetic resources collections. In particular, DNA-based polymorphisms are a powerful tool in the assessment of the genetic characterisation. Among the various molecular markers, RFLPs were the first to be used for plant genome studies, on mapping and diversity analysis. However, RFLPs are labour intensive and time consuming, and require a large quantity of DNA and for cocoa a purification by ultracentrifugation. PCR-based techniques can be used to detect polymorphism, these methods do not require a so large quantity of DNA that RFLPs, and are convenient for genetic analysis on plant at early stage. Between PCR techniques, an advantage of the microsatellites, is the codominant mode of inheritance permitting easy transfer of markers between genetic maps of different crosses in contrast to the dominant PCR markers type based on arbitrary primer. Compared to the RFLPs, microsatellites detected more alleles and a higher level of polymorphism within cultivar variation, they are a powerful tool for estimation of heterozygosity. Some results obtained on cocoa clones included in the CFC/ICCO/IPGRI project on Cocoa Germplasm Utilization and Conservation will be discussed. In a future, there is a possibility to construct a database for all microsatellite alleles on cocoa clones.