

Genetic variation among oil palm parent genotypes and their progenies based on microsatellite markers

ABSTRACT

Knowledge on genetic distances and relationships among breeding materials has a significant impact on crop improvement. Molecular markers are being used increasingly to determine the genetic distance between individuals. In this study, microsatellite markers were used to estimate the genetic distances between selected oil palm parent lines. Microsatellite markers are highly reliable, inherited in codominant fashion whereby heterozygotes and homozygotes are distinguishable, easy to score and can be rapidly produced using PCR technology. Nine microsatellite markers were used to screen selected parent palms (15 duras and 4 pisiferas) and their progenies (16 DxP crosses). Data were scored and analysed using the Biosys-1 software to calculate the genetic distance values. A total of 29 polymorphic bands were generated. The genetic distances between progenies ranged from 0.089 to 0.313. These results indicate that microsatellite markers are powerful tools for studying genetic relationships among DxP progenies. These markers should be further explored to assist oil palm breeding.

Keyword: Oil palm; Microsatellite markers; Genetic distance