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GENETIC RELATIONSHIPS AMONG AVOCADO ACCESSIONS FROM CALIFORNIA AND MÉXICO CHARACTERIZED BY AFLP MARKERS

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Thirty-seven avocado accessions from California and forty-two accessions from Mexico were examined for their genetic relationship using amplified fragment length polymorphism (AFLP) markers with near Infrared fluorescent labelled primers. Six AFLP primer sets selected from 32 screened EcoRI (E) +2/MseI (M) +3 primer set combinations were used in the study: IRD700 E+GC/M+CAC; IRD800 E+CA/M+CAC; IRD700 E+GA/M+CTT; IRD800 E+CG/M+CTT; IRD700 E+GC/M+CAG; and IRD800 E+CA/M+CAG. Dendrograms based on the unweighted pair-group method, arithmetic average cluster analysis (UPGMA) and principal coordinated analysis (PCOA) were conducted based on AFLP polymorphisms and all samples can be uniquely identified. The study of California accessions suggested that there are further genetic divisions within the Mexican and West Indian avocados. This was also the first study of large number of Mexican avocados from Mexico using AFLP markers. The relationship among commercial avocado cultivars and rootstocks in California, and their relationship with avocado accessions from Mexico will be discussed. The implications of the findings for future avocado germplasm collection and preservation will be discussed. The results demonstrated the efficiency and ease of using AFLP markers for fingerprinting avocado accessions and study of avocado germplasm.