APPLICATION OF BIOTECHNOLOGIES TO AVOCADO BREEDING IN CUBA

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The present work shows recent advances obtained with the use of biotechnological techniques for breeding avocado in Cuba for their resistance to root-rot and tolerance to salinity. A genetic diversity analysis was undertaken among 22 avocado varieties cultivated in Cuba and a rootstock based on 12 and 16 primers combinations of AFLP and SSR respectively. Results indicated that both molecular markers were efficient in: *i)* detecting polymorphism, *ii)* identifying cultivars and *iii)* confirming the ecological and/or botanical classification. A collection of *Phytopohthora* spp. and *Phytium* spp. strains isolated from commercial plantation was made. Morphological and physiological characters were used for the identification and characterization of those isolated. The results obtained permitted distinguishing *Phytopohthora* spp. and *Phytium* spp. strains, confirming the usefulness of this combined approach for the identification of fungal isolates. Conductimetric bioassays are conducted to find more effective strains of *P. cinnamomi* for the use of fungal toxic filtrates in *in vitro* selection of zygotic embryos of "Duke 7" rootstock. Although no differences have been detected with respect to the specificity of the strain studied after treating zygotic embryos with the raw extract, a differential response from the genotype regarding strains used to produce a reaction in the leaf tissue was noticed. Survival rates against γ-rays and saline conditions, combined with zygotic embryo culture were proposed for the improved tolerance to salinity in avocado trees.