Detecting somaclonal variation during micropropagation of vine rootstocks using SSR molecular marker and flow cytometery analysis

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During the process of micropropagation maintaining the identity of the matrix plant is an important step. To achieve this objective developing appropriate method in detecting somaclonal variation is crucial step. Microsatellite molecular marker and analysis of flow cytometry were used to detect somaclonal variation in five vine rootstock cultivars (SO4, Kober 5BB, 101-14, Paulsen 1103 and Gravesac) taken at different growth condition (plant matrix in germplasm bank, seedling cultured *in vitro* and maintained in growth chamber, and seedlings acclimatized in green house condition). Among five SSR primer of 'core set, VVS2, VVMD7, VVMD5, VVMD25, and VRZag62 used only primer VVMD7 detected difference among plant matrix and seedlings obtained from *in vitro* culture. The flow cytometry analysis also confirmed the change in the DNA content among the micropropagated seedlings and the matrix plant which showed the occurrence somaclonal variation during the micropropagation process. This result may alter the phenotypes and the performance of the genotypes in the field. Therefore appropriate care should be taken during the process of micropropagation to avoid stress environment that can cause somaclonal variation. The study also confirmed the potential use of microsatellite marker and flow cytomery analysis in detecting somaclonal variation during micropropagation process.
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