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Genetic Relationships of the Principal Grape Rootstocks and Grape Germplasm Using RAPD and SSR markers

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Genetic relationships were analyzed with 29 grapevine rootstocks and 14 wild grapes by random amplification of polymorphic DNA (RAPD) and SSR markers. Total 290 polymorphic bands were generated by RAPD-PCR with 30 Operon and UBC primers, and 116 polymorphic bands were generated by 8 SSR markers. UPGMA (unweighted pair-group method arithmetic average) cluster analysis was performed by using 406 polymorphic bands. The grapevine rootstocks and wild grapes were classified into seven clusters by similarity index of 0.76 except out-group, 'Ampelopsis sp.'. The Korean native Vitis flexuosa was classified into the second group, V. coignetiae and V. amurensis were classified into the sixth group. Similarity values among the tested grape rootstocks and wild grapes were ranged from 0.652 for ‘Campbell Early’ and ‘Millardet et Grasset 420 A’ to 0.978 for ‘Paulsen 779’ and ‘Paulsen 1447’, the average similarity value was 0.702. The results could be used as useful reference for identification of grape rootstock cultivars and improving understanding of genetic relationships among species in genus Vitis.

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