

# GENETIC PROFILING OF MOLDAVIAN, CRIMEAN AND RUSSIAN CULTIVARS OF *Vitis Vinifera* L. WITH NUCLEAR MICROSATELLITE MARKERS

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Microsatellite markers have proved to be a useful tool for assessing genetic identities and genetic relationships between grapevine gene pools (for a review, Sefc et al., 2001). We report here the characterization of Moldavian, Russian and Crimean genetic resources of grapevine sources with the use of nuclear microsatellite markers.

The 52 Crimean and 27 Moldavian cultivars, included in this study, are conserved in the ampelographic collection of the Institute of Wine and Vines Magarach in Yalta, Crimea, Ukraine and represent a major part of the grapevine genetic resources from these provenances. Crimean are from the region of Crimea and not from other regions of Ukraine. The 24 Russian cultivars, are conserved in the new ampelographic collection of Russia, located at the University of Agriculture of the Kuban state in Krasnodar. Cultivars were selected as being potentially the most ancient cultivars cultivated in these regions, without prejudice of their native or foreign origin, since it could be likely for historical reasons that some Greek, Turkish or Caucasian cultivars would have been transmitted to these regions. Genetic profiling of these cultivars was carried out with 9 nuclear microsatellite loci previously characterized: VVS2, ssrVrZAG21, ssrVrZAG47, ssrVrZAG62, ssrVrZAG64, ssrVrZAG79, ssrVrZAG83, ssrVvUCH11 and ssrVvUCH29. These loci have already been used in similar works of genetic characterization in other European countries. Consequently, allele sizing carried out in our laboratory was standardized with profiling results obtained at the same loci by Sefc et al. (2000) and Lefort and Roubelakis-Angelakis (2001). Standardization allowed to compare these Crimean, Moldavian and Russian grapevine cultivars with Western European and Greek genetic resources already characterized at the same loci.

The total number of alleles found in these 103 cultivars was high at 105 alleles and consequently the mean number of alleles per locus was high at 11,66 which was much higher than those previously recorded in other gene pools with the same set of markers (Lefort and Roubelakis-Angelakis, 2001; Sefc et al. 2000). Heterozygosity was high and ranged between 0.71 and 0.93, though the estimated frequency of null alleles was surprisingly close to 0.05 at 2 loci VVS2 and ssrVrZAG79, which resulted from a slight excess of homozygous cultivars at these loci. The average heterozygosity was high at 0.80 and expressed an overall high diversity, which was also expressed by a low average genetic similarity of about 37% as calculated from the distance matrix. The microsatellite profiling at 9 loci was powerful enough to discriminate 103 cultivars in 102 single identity profiles. Most of the cultivars clustered in groups of branches according to their geographic origins. Russian cultivars seem to be of mixed origins, with some groups closer to Moldavian cultivars while others were closer to Crimean cultivars. Only one pair of synonyms were found among these 103 cultivars and they were two Crimean cultivars. Biyas aibatly and Khachador. Possible parent relationships were only found for 5 combinations of cultivars with four of them involving Moldavian cultivars, which would need further investigation at more loci. Such a low level of

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possible parent relationship at only 9 loci is congruent with the high observed diversity and could suggest that a large part of these resources were from diverse origins. No synonyms were found between cultivars from these 3 provenances and 305 other cultivars from France, Greece, Switzerland and Albania (data not shown) when comparison were made at 8 loci out of nine.

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