

LEADING SWEET CHERRY APULIAN CV. FERROVIA (*PRUNUS AVIUM* L.) APPEARS GENETICALLY AKIN TO SEVERAL CENTRAL-EASTERN EUROPEAN CULTIVARS

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Genetic diversity studies in fruit trees can provide useful information for parental selection in breeding programs, optimization of collections, and identification of synonymous denominations. DNA comparisons alone (i.e. without morpho-physiological descriptors) might not display the full extent of genetic diversity present in reference collections or in a germplasm. Yet, DNA analyses are very powerful for the breeder in confirming or undermining expected links or associations and/or pinpointing unforeseen relationships. Furthermore, DNA fingerprints can be a rapid and precise tool in the field of genetic correspondence analyses, if the error associated with spurious bands, subjective interpretation and casual association is taken into account.

The Province of Bari (in the Apulia region) stands out nationwide for sweet cherry production and export, by growing a few key cultivars of diverse origins and a large mix of locally diffused denominations. Thus, a representative sample of local germplasm was compared by AFLPs with selected cultivars from France, Germany, Hungary, and Canada, chosen either because they are locally grown or because of testing purposes (34 cultivar denominations).

Total leaf DNAs from the cherry tree collection gathered and maintained by the Department of Crop Sciences of Bari were isolated and amplified with 13 primer combinations labeled with ³³P, followed by gel-electrophoresis fragment separation and visual band scoring on autoradiographs. A conservative scoring yielded 168 AFLP polymorphisms (a hundred without *P. mahaleb*), and their 0/1 matrixes were analyzed with NTSYS-pc by UPGMA dendrograms of simple matching (SM) similarities. Internal controls were: i) an outgroup species (*Prunus mahaleb*, widely used in Apulia as rootstock); ii) cultivars with a known family tree (Sunburst, plus its female and male parents Van and Stella); iii) replicated samples (DNAs isolated from the same tree at different times).

As expected, inclusion or exclusion of *P. mahaleb*, distantly related to *P. avium*, had a drastic effect on the absolute SM values only, and not the relative (within-cherry) SM values, and thus the dendrogram topologies were unchanged. The exclusion reduced the cophenetic correlation from $r=0.98$ to $r=0.89$. Cultivars grouped at all the levels of similarity, up to 100%, and were thus classified as ‘alike’, ‘related’, and ‘unrelated or undetermined’. Overall, more agreements with independent observations were found than disagreements. In particular, four clusters were found at very high similarity values, close to being identical. One of them matched Ferrovia, a well-known local cultivar, with six other denominations, Schneiders, Germersdorfer and Badacsony, which are diffused in central and eastern Europe, thus, providing strong evidence that the Ferrovia genotype is

not autoctonous from Apulia. Scoring approach, experimental error, and independent evidences are discussed.