

The use of isozymes for characterization of Spanish *Vitis* cultivars

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A b s t r a c t : Cuttings and leaves from *Vitis* cultivars were sampled and extracted in a buffered medium throughout the growing season. From the extracts, several isozyme systems were electrophoretically separated in polyacrylamide slab gels and stained with adequate solutions. The isozymes studied were: catechol oxidase (CO), acid phosphatase (ACPH), esterase (EST), peroxidase (PER), malate dehydrogenase (MDH), glucophosphate isomerase (GPI), and glutamate-oxaloacetate transaminase (GOT). The results of the analysis indicate the usefulness of isozymes for distinction among *Vitis* species and cultivars for the studied varieties. The utilization of these analyses as a standard method for characterization of grape cultivars and rootstocks is discussed.

The anthocyanins of grapevine leaves and their taxonomic importance

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A b s t r a c t : The anthocyanin composition of red leaves of some *Vitis* species was determined by HPLC at berry maturity. Chromatograms show important variations between species:

- Asiatic species (*Vitis amurensis*, *V. coignetiae* and *V. thunbergii*) have a lot of cyanidin monoglucoside (MG-Cy \geq 90% of total anthocyanins). They also have diglucosides of cyanidin and delphinidin, but no acylated anthocyanins.
- American species (*V. berlandieri*, *V. riparia* and *V. rupestris*) have no anthocyanins in the leaf blade, but they have some traces of these pigments in the petioles.
- Two groups occur in *V. vinifera* cultivars: The first group (Sultane rouge, Merlot noir ...) has a preponderance of hydroxylated anthocyanins (cyanidin and delphinidin monoglucosides) over related methoxylated (paeonidin and malvidin monoglucosides), and has some traces of acylated anthocyanins. The second group (Gamay Fréaux, Malbec, Cabernet Sauvignon ...) has a preponderance of methoxylated anthocyanins over related hydroxylated, and large amounts of acylated anthocyanins.