

Manna CRESPIAN*

AUTOCHTHONOUS GRAPEVINE VARIETIES OF ITALY

Abstract: Viticulture is practiced in all Italian regions with plenty of grapevine varieties. Establishing, at least approximately, their number, their names and origin is a still ongoing work, strongly supported by genotyping. The names of grapevines in Italy often derived from those of wines, which are in turn strictly linked to specific places. While the cultivated pool of *Vitis vinifera* L. varieties is geographically structured, several studies have shown that cultivars attributed to Italy are admixed and a structure in this huge grapevine germplasm cannot be determined, neither using molecular data nor ampelographic traits. Nonetheless, some founders of Italian varieties were discovered; among the main ones, Sangiovese, Garganega, Malvasia aromatica di Parma, Mantónico bianco, Muscat à petits grains blancs, Sciaccarello. Over time intense breeding activity produced a large heritage of new Italian varieties, some of them of great worldwide value, like table grape “Italia”. The most recent ones were selected for tolerance/resistance to the main mildews (powdery mildew, downy mildew and botrytis), aiming to sustainable viticulture while maintaining high quality production. Sustainable viticulture and innovative wine production rely on local/autochthonous varieties and new genotypes resistant/tolerant to the main mildews.

Key words: *genotyping, population structure, pedigree, breeding*

INTRODUCTION

Talking about Italian autochthonous grapevine varieties is a challenge, given the millennial history of Italian viticulture, its richness of grapevine germplasm, and the long historical exchange relationships with neighbouring Countries. Viticulture is practiced in all Italian regions and each of them has great interest in knowing its own ampelographic heritage. Given the plenty of varieties, one of the main problems Italian ampelographers had to face with was understanding, at least approximately, how many they are, what

* CREA Research Centre Viticulture and Enology, Conegliano (TV), Italy

names they have and where are they from. Homonyms and especially synonyms are frequent, sometimes with impressive lists of highly different names, like those of Montonico bianco (Tab. 1), that makes it difficult even to imagine a possible connection among those plants. When ascertained, plenty of synonyms linked to single genotypes return useful advices about cultivar age and spreading.

Table 1. List of Montonico bianco synonyms [1].

Montonico bianco di Bruni
Greco bianco del Pollino
Scala
Dolciolo
Chiapparone or Pagadebiti
Raspazzese
Trebbianone
Cioccolontano
Montonico Poggio delle rose
Ingannacane bianco
Chiapparù
Uva regno

Present Italian viticulture is concentrated on the cultivation of few well-known cultivars (Sangiovese, Trebbiani, Catarratti, Montepulciano, Glera, Barbera, Negroamaro, Nero d'Avola), among them Italian ones are mainly declining, due to the dramatic lowering of surface for grapevine growing.

The strong dynamic change of surface variation occurred in only five years, from 2010 to 2015, is reported in Tab. 2.

Table 2. Dynamic change of surface variation

Variety/group of varieties	2015	% variation
Sangiovese	53,86	-23,4
Trebbiani	42,14	-33,0
Catarratti	32,22	-14,8
Montepulciano	27,43	-11,8
Glera	26,57	64,6
Pinot gris	24,50	143,7
Merlot	23,63	-2,1
Chardonnay	20,05	21,4
Barbera	18,43	-13,4
Negroamaro	17,50	5,5
Primitivo	16,32	45,6
Nero d'Avola	15,27	-17,2

Among Italian cultivars, only Glera and Negroamaro are bucking (+ 64,6 and 5,5%, respectively), the first one due to the Prosecco wine phenomenal expansion and international success. Prosecco can become the driving force to support the marketing of other, less known sparkling wines produced in the same area, like those obtained from Ribolla gialla. Generally speaking, nowadays one possibility for gaining an extra market share may rely on the cultivation of selected traditional local varieties, vinified with modern oenological techniques to produce wines suitable for current tastes. If supported by adequate marketing strategies, this choice can open new sales channels, as proved by Prosecco wine experience.

An increased interest arose in the recovery, identification, characterization, safeguarding and relaunching of minor Italian local cultivars; this work is still going on and is strongly supported in its first steps by genotyping and molecular databases comparisons. However, as a result, some presumed autochthonous Italian varieties showed to come from outside, like “Malvasia nera toscana” = Tempranillo (Spain) [2], “Spigamonti” = Aspiran Bouschet (France) [3], “Gragnelut” = Fer (France), “Sbulzina” = Blaue Zimmettraube (Slovenia) [4].

The names of grapevines in Italy often derived from those of wines, which are in turn strictly linked to specific places. This phenomenon explains the first part of cultivar shared names, like Malvasie, Moscati, Greci, Trebbiani, Refoschi, Lambruschi, Glere, Corvine, Ribolle, Garganeghe, Recantine, Montonici, each of them encompassing more varieties, distinguished by an addendum to the first name. The common names suggest parentage relationships, but these links were not systematically ascertained.

While the cultivated pool of *Vitis vinifera* L. varieties is geographically structured, several studies have shown that cultivars attributed to Italy are admixed and a structure in this huge grapevine germplasm cannot be determined, neither using molecular data nor ampelographic traits [5, 6].

In some instances, genotyping for cultivar identification and pedigree studies with molecular markers offered the opportunity to answer some questions about Italian cultivars origin and provenance. Unfortunately, rebuilding the puzzle of the origins is difficult, perhaps because many parents disappeared. Nonetheless, some founders of Italian varieties were discovered, like Sangiovese, Garganega, Sciaccarello, Mantónico, Muscat à petits grains blancs, Malvasia aromatica di Parma [1, 7, 8, 9]. Thanks to pedigree studies, many Malvasias and Muscats cultivated in Italy showed to be intertwined and some of them surely born in Italy, like Malvasia nera di Brindisi/Lecce, Malvasia nera lunga, Malvasia di Casorzo [11, 10].

Italy has an increasing heritage of autochthonous varieties produced by classical breeding. Worthy of mention is cultivar Italia, a table grapevine

spread all over the world; among wine cultivars, some Manzoni's, Rigotti's, Dalmasso's, crosses get some success, like Manzoni bianco, Rebo, Albarossa. Another one more recent, showing growing interest, is Merlese, a cross between Merlot and Sangiovese obtained by the University of Bologna. New varieties tolerant to botrytis, called IASMA Eco1, IASMA Eco2, IASMA Eco3, and IASMA Eco4, were obtained by Fondazione Edmund Mach. Finally, the new crosses Cabernet Eidos, Cabernet Volos, Fleurtaï, Julius, Merlot Khantus, Merlot Korus, Sauvignon Kretos, Sauvignon Nepis, Sauvignon Rytos, and Soreli obtained by the University of Udine for resistance to downy and powdery mildew represent a promising group of Italian autochthonous varieties.

CONCLUSION

Italian autochthonous grapevine germplasm shows a complex genetic background. Two parallel paths are followed searching for varieties suitable for sustainable viticulture and innovative wine production: I) the recovery and valorisation of local/autochthonous varieties and II) classical breeding, supported by marker assisted selection when possible, with a special effort to produce new genotypes resistant/more tolerant to the main mildews.

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Manna CRESPLAN

AUTOHTONE SORTE VINOVE LOZE U ITALIJI

Sažetak

Vinogradarstvo je zastupljeno u svim italijanskim regionima i karakteriše ga prisustvo velikog broja sorti. Utvrđivanje, barem približno, njihovog broja, njihovih imena i porijekla još uvijek je u procesu i uglavnom se bazira na genotipizaciji. Nazivi sorti vinove loze u Italiji su često poticali od onih vina koja su striktno povezana sa posebnim mjestima. Dok je fond gajenih sorti *Vitis vinifera* L. geografski struktuisan, nekoliko studija je pokazalo da sorte koje su pripisane Italiji potiču i iz drugih zemalja, a struktura u toj ogromnoj, germplazmi vinove loze ne može da se odredi ni korišćenjem molekularnih podataka, niti ampelografskim karakteristikama. Ipak, otkriveno je nastajanje nekih italijanskih sorti, kao što su: *sangiovese*, *garganega*, *malvasia aromatica di parma*, *mantonico bianco*, *muscat à petits grains blancs*, *sciaccarello*. Vremenom je intenzivna proizvođačka djelatnost stvorila veliko bogatstvo novih italijanskih sorti, od kojih su neke značajne i za svjetsko vinogradarstvo, kao što je stona sorta vinove loze *italia*. Najnovije sorte stvorene su da budu tolerantne/otporne (pepelnica, plamenjača i botrytis), sa ciljem održivog vinogradarstva, uz održavanje visokokvalitetne proizvodnje. Održivo vinogradarstvo i inovativna vinarska proizvodnja oslanjaju se na lokalne/autohtone sorte i nove genotipove otporne/tolerantne na glavne bolesti.

Ključne riječi: genotipizacija, struktura populacije, pedigree, oplemenjivanje