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# **Caucasus and Northern Black Sea Region Ampelography**





# VITIS

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To complete a book written by several authors from different countries and speaking different languages is not a simple activity. If the book is an ampelography the work is even more complex due to the need of harmonize the terminology used by the different authors among them and in relation to the international standard. A further critical aspect is the comparisons between description and photos.

The editors are really grateful to

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Julius Kühn-Institute - Institute for Grapevine Breeding Geilweilerhof, Siebeldingen - Germany

for his huge work. His contribution has been fundamental for the issue of the volume not only in term of editing but also in relation to the control of coherency of the texts.

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**Cover illustration:** Ukrainian grape variety 'Ekim Kara' N.  
by V. VOLYNKIN *et al.*, 424-425

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## Viticulture and winemaking of Azerbaijan

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Azerbaijan (Republic of Azerbaijan) is located in Southern Caucasus, 38°25' - 41°55' latitude and 44°50'-50°51' longitude. It borders on Iran and Turkey to the south, Dagestan (Russia) to the north, on Georgia to the north-west and on Armenia to the south-west. The Caspian Sea is situated to the east of the country (MUSEYIBOV *et al.* 2006).

The territory of Azerbaijan is 86,600 km<sup>2</sup>. Forests cover 11 % of its territory, 1.6 % is covered by water basins, 50 % by cultivated land and the rest is covered by other land. One of Azerbaijan's main features is the exceptional diversity in flora and fauna, climate, soil, minerals, underground water, etc. It is mainly a mountainous country, but besides the high peaks above the snow line such as Bazarduzu (4466 m a.s.l.), Shahdag (4251 m a.s.l.) and Tufandag (4197 m a.s.l.), there are also wide plains and lowlands, some of which are located 26 m below the sea level. Basic elements of the Azerbaijani relief are the Large Caucasus Range, the Small Caucasus Range, the Cura-Araks lowland and the Tallish Mountain System (MUSEYIBOV *et al.* 2006).

There is a very rich flora in Azerbaijan and 66 % of all the Caucasian species are represented, including: 800 essential oil-yielding plants, 600 medicinal plants, 500 spicy-aromatic plants, 500 plants rich in vitamin, 850 dyeing plants and 1500 tanning plants. Azerbaijan is rich in relict plants dating back to the Tertiary period. Specimens of these plants can often be found in many areas and particularly in the territory of Tallish, e.g. the Iron tree (*Parrotia persica* C.A.Mey.), Acacia (*Albizzia julibrissin* Durazz.), Chestnut-leaved oak (*Quercus castanifolia* C.A.Mey.) and the Caucasus Persimmon tree (*Diospyros lotus* L.) (PRILIPKO 1954, ABUTALYBOV and HAJIYEV 1976).

Such a diversity of flora and plants is attributed to Azerbaijan's physical, geographical and climatic conditions, as well as to its complex history. The climate of Azerbaijan is characterized by diversity, as there are 8 main climates and 26 particular climate zones.

Azerbaijan is one of the most ancient centers of origin of grape culture. N.I. VAVILOV and other researchers have shown that Asia Minor - including Azerbaijan - is the homeland of grapevine cultivation. It has been determined that one of the main centers of origin of grapevine varieties, cultivated in Europe and Asia, is a territory located between the Caspian Sea and the Black Sea (VAVILOV 1960).

If we consider that nowadays the wild grapevine *Vitis vinifera* ssp. *sylvestris* Gmel. grows in Azerbaijan, it may be supposed that it was used as a food supply and as primary material for the selection of grapevine varieties. Grapevine fossils (half a million years old) were discovered by scientists of Azerbaijan during archaeological excavations near Nakhchivan (SULEYMANOV and MAMMADOV 1982, BABAYEV 1988).

Ancient experience in grapevine cultivation allowed the Azeri to improve their secrets about vine care. Every viticultural technique is a product of local experience in different regions and historical periods. Each one has been adapted to the local conditions and this is why we have such a variety of training systems, like 'Chiyaban', 'Molla cheperi', 'Keleser', 'Serilen forma', 'Yarimgovs', 'Cherdak' or 'Yaberi' and others. Farmers select the training system in order to obtain the best grape in relation to a variety of products like wine, spirit, jam, bekmez, vinegar, abgora, sudjuk, kishmishi, sherbet and others (NEGRUL 1973, AMANOV 2001). Moreover, different varieties of fresh grape, white and red, are cultivated for national table consumption. For all these reasons, grape is considered - after wheat - as one of the most valuable crops and



Fig. 1: Typical commercial vineyard in the country.



Fig. 2: Summer pruning of vine is one of the most important activities for vine growers.



The period between 1970 and 1975 should be mentioned as a golden age for viticulture and winemaking in Azerbaijan. Since 1970, systematic improvements of the existing vineyards' state and planting of new ones have been carried out in the country. In five years, more than 50,000 ha of new vineyards were established. By 1975, the total area of vineyards in Azerbaijan reached 178,100 ha.

The total grape production in 1975 doubled (354,700 t) in comparison to 1970, and average yields increased from 4.68 to 6.51 t·ha<sup>-1</sup>. The total vineyard area of 263,000 ha gave a gross yield of 148,130 t of grape. By 1980, the wine production reached 70.7 million decalitres and that of brandy was 1.16 million decalitres. At the same time, the assortment of winemaking products became wider and quality improved, as the country produced 18 brands of dry table wine, 20 brands of fortified desert wine, 11 brands of desert wine and 6 brands of brandy (PANAHOV and SALIMOV 2008a).

In 1984 the total vineyard surface (254,000 ha) yielded 2 million t of grape with an average productivity of 9.0 t·ha<sup>-1</sup> or more. The total production of the wineries was 2,100,000 t during that period. The high quality of wines and brandies of Azerbaijan was acknowledged by 30 gold and silver medals won on various wine competitions. At that time, over 150,000 specialists and workers were employed in 210 wineries and their branches. Fifty-five brands of wine, 10 brands of brandy, 4 brands of sparkling wine and other winemaking products were produced in Azerbaijan in 1984. As the winemaking industry was generating such an income, the general welfare of the local population increased.

The anti-alcoholic law of the former Soviet Union in 1985 inflicted a big loss to the economy of Azerbaijan. After this law, most of the fruit-bearing vineyards and the winemaking plants of the country were destroyed (ALIYEV 1998, PANAHOV and SALIMOV 2008a, SALIMOV *et al.* 2008).

By 1993, the total area of fruit-bearing vineyards fell to 127,000 ha, the total yield was reduced to 289,000 t with a productivity of 2.28 t·ha<sup>-1</sup> of grapes (PANAHOV and SALIMOV 2008a).

At the beginning of 21<sup>st</sup> century, a renewed attention towards viticulture and winemaking rose within the country. An important step to help the progress of activities in the free market is represented by the law of the Azerbaijan Republic "About Viticulture and Winemaking" (21.01.2002) and by the Governmental Program "About Social-Economic Development of Regions for 2004-2008". These government actions opened wide opportunities for the development of rural economy, including viticulture and winemaking. At present, vineyards in Azerbaijan cover 10,000 ha. The grape production has increased to 103,300 t per year, with a yield of 7.67 t·ha<sup>-1</sup>.

The lists of the main table and wine grape cultivars of Azerbaijan are given below (Tabs 1 and 2).

Of all the wine grape varieties cultivated in Azerbaijan at the moment, 37 cultivars are white, 22 are black and 6 have a red or pink berries. There are 38 table varieties, 22 wine varieties and 5 seedless or semi-seedless varieties in total. Of these, 38 varieties are indigenous and 27 have been introduced (SALIMOV *et al.* 2008).



Fig. 3: The map demonstrates the specialization of the country in making various grape products.

Table 1

List of the main table grape cultivars of Azerbaijan

1	Agadaiyee	15	Cardinal	29	Muscat Hamburg
2	Ag Aldara	16	Chehrayee Taify	30	Muscat Voskovoy
3	Ag Khalily	17	Gara Kishmish	31	Nagshaby
4	Ag Oval Kishmish	18	Gara Shany	32	Nail
5	Ag Shany	19	Girde Kishmish	33	Nakhchyvan Chehrayi Kishmishi
6	Ag Shasla	20	Gyrmyzy Merendi	34	Novrast
7	Agdam Gyzy Uzumu	21	Gyrmyzy Saaby	35	Nimrang
8	Alykhanly Garagyozy	22	Inekemjegy	36	Pobeda
9	Alykhanly Kechimemesi	23	Italia	37	Shafeyi
10	Arna-Grna	24	Katta-Kurgan	38	Salyany
11	Askeri	25	Khuseyni	39	Shamakhly Marandisy
12	Azeri	26	Mahmudu	40	Sarygilya
13	Bendi	27	Misgaly	41	Sultany
14	Bey Uzumu	28	Muscat Alexandria	42	Tabrizi



Table 2

List of the main wine grape cultivars of Azerbaijan

1	Aligoté	12	Meleyi
2	Alfons Lavallo	13	Muscat White
3	Bayanshira	14	Pinot Noir
4	Cabernet Sauvignon	15	Rkatsiteli
5	Gamashara	16	Riesling
6	Gara Aldara	17	Saperavi
7	Grenache White	18	Chardonnay
8	Grenache Black	19	Semillon
9	Isabella	20	Shireyi
10	Khindogni	21	Shirvanshahy
11	Madrasa	22	Tavkveri

The indigenous seedless or semi-seedless varieties 'Askery', 'Ag Oval Kishmish', 'Nakhchyvan Chehraiye Kishmish', 'Gara Kishmish', 'Girda Kishmish', etc. are grown on private farms and are mainly consumed as fresh fruit or used to make jam. Homemade raisins are still made with a traditional method in the region of Nakhchyvan, using these varieties (SALIMOV *et al.* 2008).

The qualitative peculiarities of the grape cultivars of Azerbaijan are the basis of the production of a wide assortment of high quality wines. At moment, the wineries of Azerbaijan mainly produce table (dry, semi-sweet), fortified (dry, semi-sweet, sweet, liquor), dessert and other styles of wines.

In 2007, 12,100 decalitres of light wine and 53,000 decalitres of sparkling wine were produced. In the last 8 years (2000-2007), the average production was 458,100 decalitres of wine and 89,300 decalitres of sparkling wine. A part of dry table and dessert wine is mainly exported to Russia, Ukraine, Belarus, China, Vietnam and other countries (AGRICULTURE OF AZERBAIJAN 2008).

Since ancient times, Azeri people have always been producing various homemade products, including natural red and white wines from 'Bayanshira', 'Madrasa', 'Shirvanshahy', 'Khindogny', 'Meleyi', 'Gara Lkeny', 'Ag Shireyi' and other grape varieties. An interesting peculiarity is the so-called Gora Sharab wine, a tradition of the regions of Guba-Khachmass, Garabagh and Shaky-Zagatala. To produce this, besides cultivated grapes, people use a wild grape gathered in forests and riversides (SALIMOV *et al.* 2008).

Azerbaijan has a considerable number of different indigenous grape varieties: on the basis of the latest data, it is known that more than 400 local grapevine varieties are cultivated in Azerbaijan at present. Only 200 of these have been collected and included in field collections. Many regions of Azerbaijan are rich in valuable local grapevine varieties which have not been studied yet (SHERIFOV 2005, PANAHOV and SALIMOV 2008b).

The wild grapevine *Vitis vinifera* spp. *sylvestris* Gmel. is spread in the whole territory. Its formation is very ancient and it is characterized by specific traits; its location ranges from 12 m below the sea level (Kyr riverside, Salyan region) up to 2000 m a.s.l. (Gusar region). It grows at the slopes of mountains, in forests, along riversides and in other places. There are two kinds of wild grape in Azerbaijan: *typica* Negr. (with hairs) and *aberrans* Negr. (hairless) (AMANOV 1998, SALIMOV and MUSAYEV 2007, SALIMOV and MUSAYEV 2008).



Fig. 4: Wild vine in nature.



Fig. 5: Trunk of wild vine with a 60 cm diameter



With the purpose to preserve the grapevine genetic resources of Azerbaijan, a field ampelographic collection was established by the Research Institute of Genetic Resources and by the Azerbaijan Research Institute of Viticulture and Winemaking. The collection includes native varieties, local breeding varieties, introduced cultivars and wild forms of grapevine. This collection will be constantly followed year after year.



Fig. 6: Researchers of the institute of Viticulture and Winemaking are collecting pollen of grapevine varieties for pollination of female flowers and for breeding purposes

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## Azerbaijan: native varieties of grapevine

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- |     |                          |     |                                  |
|-----|--------------------------|-----|----------------------------------|
| 1.  | Absheron Gelinbarmagy B. | 28. | Gara Shany N.                    |
| 2.  | Absheron Gyzyt Uzumu R.  | 29. | Goyun Gyozu B.                   |
| 3.  | Absheron Kechiemjeyi Rg. | 30. | Gyavangir B.                     |
| 4.  | Ag Gyavra B.             | 31. | Gyrmyzy Marandi Rg.              |
| 5.  | Ag Oval Kishmish B.      | 32. | Haji Abbas N.                    |
| 6.  | Ag Shany B.              | 33. | Iri Salkhym B.                   |
| 7.  | Agdam Gyzyt Uzumu R.     | 34. | Karga Dili N.                    |
| 8.  | Agdam Gyulabisi R.       | 35. | Kerimgendi B.                    |
| 9.  | Agdam Khazarisi B.       | 36. | Khyndogny N.                     |
| 10. | Ala Shany R.             | 37. | Khyrcha Kishmish B.              |
| 11. | Alykhanly Garagyozy N.   | 38. | Kyok Kishmish B.                 |
| 12. | Alykhanly Kechimemesi B. | 39. | Madrasa N.                       |
| 13. | Amiri B.                 | 40. | Meleyi N.                        |
| 14. | Arayaty Gara Uzum N.     | 41. | Marandi Rg.                      |
| 15. | Arna - Grna B.           | 42. | Nabi Uzum B.                     |
| 16. | Askeri B.                | 43. | Nakhchivan Chehrayi Kishmishi R. |
| 17. | Bayanshira B.            | 44. | Salyany B.                       |
| 18. | Bendi B.                 | 45. | Sarmayi B.                       |
| 19. | Boyakhany N.             | 46. | Sarygilya B.                     |
| 20. | Cherez N.                | 47. | Shafeyi B.                       |
| 21. | Dana Burnu B.            | 48. | Shekerbari B.                    |
| 22. | Deve Gyozy B.            | 49. | Shireyi B.                       |
| 23. | Et Marandi R.            | 50. | Shirvanshahy N.                  |
| 24. | Fatmayi B.               | 51. | Surmeyeyi N.                     |
| 25. | Gara Khazani N.          | 52. | Tabrizi B.                       |
| 26. | Gara Kishmish N.         | 53. | Yagubi Rg.                       |
| 27. | Gara Kyurdashy N.        | 54. | Zeynebi B.                       |

Notes: N-Noir (black), B-Blanc (white), Rg-Rouge (red), G-Gris (gray), R-Rose (pink).



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Table

Some general transliterations and translations from Azerbaijani to English

Transliteration	Translation
Ag	White
Chehrayi	Pink
Gyrmzy	Red
Gara	Black
Yashil	Green
Sari	Yellow
Sherab	Wine
Surma	Coloured, Stainer
Uzum	Grape
Tenek	Vine
Gyozu	Eye
Khiyabani	Pergola
Kishmish	Raisin
Absheron	Absheron peninsula in Azerbaijan
Iri	Large
Shira	Juice





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