

Brief ampelographic characterization of indigenous grapevine cultivars subjected to clonal selection in Turkey

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S u m m a r y : A unique national clonal selection programme is still being conducted on 24 indigenous table (15 white, 6 black, 3 red), 16 wine (7 white, 9 red) and 4 raisin (2 white seedless, 2 white seeded) grape cultivars in 9 agricultural regions of Turkey. As the results of this programme, 127 candidate clones belonging to 13 cultivars have been selected.

This paper also includes a brief ampelographic description of the indigenous Turkish grape cultivars subjected to clonal selection, based mainly on fruit characteristics, growth, productivity and ripening periods in their primary locations.

Key words : selection, clone, variety of vine, table grape, wine grape, raisin, Turkey, ampelography, fruit, growth, yield, maturation.

Introduction

Viticulture is still one of the most important horticultural enterprises in Turkey with 590,000 ha of area and 3,500,000 t of production in 1988, in spite of a serious phylloxera invasion, especially in central and south-east regions.

Today, 42 table (33 indigenous, 9 introduced), 32 wine (20 indigenous, 12 introduced) and 4 raisin (2 seedless, 2 seeded – all indigenous) standard grape cultivars are being grown in different localities of Turkey.

Studies on the clonal selection of grape cultivars to select virus-free superior clones with vigorous growth, high yield and quality, resistance to low temperatures and certain fungal diseases (downy and powdery mildew, grey mold and dead-arm) were started in 1964. In 1979, a national clonal selection programme with a three-step (mass selection, clone collection (A), and clone comparison (B)) standardized method (AGAOGLU 1981) were prepared and former studies have been adapted to this method (ANONYMOUS 1979).

Materials and methods

The national clonal selection programme is still being carried out on 59 grapevine cultivars (44 indigenous, 5 introduced). All indigenous cultivars with the exception of Isikli, Bilecik Irikarasi and Osmancik are standard-selected varieties.

In the present paper, brief ampelographic characters of Turkey's indigenous grape varieties subjected to clonal selection were described using the methods of GALET (MORTON 1979) and IBPGR (ANONYMOUS 1983). In addition to these descriptions, some definitive information on type and region of the cultivars and stage of selection were also presented.

Results and discussion

As a result of the clonal selection programme on 24 table, 16 wine and 4 raisin cultivars grown in central-north (4), Aegean (11), Marmara-Thrace (11), Mediterranean (2), north-east (1), south-east (7), central-east (4) and central-south (4) agricultural regions of Turkey, 127 candidate clones

Table 1: Clonal selection programme conducted on indigenous grape cultivars in Turkey

Cultivar	Type	Region	Stage of selection	Candidate clones
Amasya beyazı	WT	Marmara	Clone collection(A)	
Beyaz Çavuş	WT	Marmara	Clone comparison (B)	10
Bozcaada Çavuşu	WT	Aegean	Clone collection(A)	
Dımışkı	WT	Southeast	Mass selection	
Erenköy beyazı	WT	Marmara	Clone comparison(B)	10
Hafızali	WT	Marmara	Clone comparison(B)	10
Hafızali	WT	Thrace	Clone comparison(B)	5
Işıklı	WT	Mediterranean	Clone collection(A)	
İpek	WT	Aegean	Mass selection	
Kozak beyazı	WT	Aegean	Clone collection(A)	
Müşküle	WT	Marmara	Clone comparison(B)	15
Damancık	WT	Aegean	Mass selection	
Parmak	WT	Centralsouth	Mass selection	
Razakı	WT	Marmara	Clone comparison(B)	15
Razakı	WT	Aegean	Clone collection(A)	
Tahannebi	WT	Southeast	Mass selection	
Tarsus beyazı	WT	Mediterranean	Clone collection(A)	
Bilecik İrikarası	BT	Marmara	Clone collection(A)	5
Değirmendere siyahı	BT	Marmara	Clone comparison(B)	8
Gül Üzümlü	RT	Centralnorth	Mass selection	
Hhüsü	RT	Southeast	Mass selection	
Karserik	BT	Northeast	Mass selection	
Karagevrek	BT	Centralnorth	Mass selection	
Kozak siyahı	Bİ	Aegean	Clone collection(A)	
Pembe Gemre	RT	Aegean	Mass selection	
Siyah Gemre	BT	Centralsouth	Clone collection(A)	
Beylerce	WW	Marmara	Clone comparison(B)	10
Öğkülgen	WW	Southeast	Mass selection	
Emir	WW	Centralsouth	Mass selection	
Hasandede	WW	Centralnorth	Mass selection	
Narince	WW	Centraleast	Mass selection	
Sungurlu	WW	Centraleast	Mass selection	
Yapıncak	WW	Thrace	Clone comparison(B)	5
Ada karası	RW	Marmara	Clone collection(A)	
Boğazkere	RW	Centraleast	Clone collection(A)	
Çal karası	RW	Aegean	Clone collection(A)	
Dirmit	RW	Centralsouth	Mass selection	
Horoz karası	RW	Southeast	Mass selection	
Kalecik karası	RW	Centralnorth	Clone comparison(B)	23
Karacakız	RW	Aegean	Clone collection(A)	
Öküzgözü	RW	Centraleast	Clone collection(A)	
Papaz karası	RW	Thrace	Clone comparison(B)	5
Yuvarlak Çekirdeksiz (Round Seedless)	WR	Aegean	Clone comparison(B)	6
Sultani Çekirdeksiz	WR	Aegean	Clone collection (A)	
Besni	WR	Southeast	Mass selection	
Rumi	WR	Southeast	Mass selection	

Symbols: WT: White Table, BT: Black Table, RT: Red Table.
 WW: White Wine, RW: Red Wine, WR: White Raisin.

TOTAL : 127

belonging to 13 cultivars (8 table, 4 wine cultivars, 1 raisin cultivar) have been selected as shown in Table 1. After the investigations of AGAOGLU and ÇELİK (1985), 54 new candidate clones of Hafızali (5), Müsküle (5), Razakı (5), Bilecik İrikarası (5), Kalecik karası (23), Papaz karası (5) and Yuvarlak çekirdeksiz (6) grapevine cultivars were selected.

The stages of clonal selection studies on indigenous Turkish grapevine cultivars are also presented in Table 1.

Table 2. Brief ampelographic characterization of indigenous table and raisin grape cultivars

Cultivar	Bunch		Density	Berry		Growth and Yield			Maturity	
	Shape	Size		Shape	Size	Color	Seed	Growth-Habit		Yield
Amasya beyazi	conical	large	loose	round	large	green-yellow	1-2	very strong	high	medium
Bilecik Irikenesi	shoulder-conical	large	loose	long obovate	very large	black	1-4	strong	high	early-late
Bevaz Çavuş (FF)*	winged-conical	large	loose	elliptic	large	green-yellow	1-2	strong-erect	high	early-medium
Böğazca Çavuş (FF)	winged-conical	large	loose	round	large	green-yellow	1-3	strong	high	early-medium
Çöğürmençe Siyahı	straw-conical	medium	medium	elliptic	medium	blue-black	2-3	very strong	high	very late
Dünüşki	straw-conical	medium	loose	long elliptic	large	green-yellow	2-3	strong	high	medium
Eskişey Beyazi	short cylindrical	medium	medium	round	medium	yellow	2-3	strong-erect	high	late
Gül üzümü	cylindrical	medium	dense	short elliptic	medium	rose	2	medium-erect	low	medium
Harizali	straw-conical	large	loose	long elliptic	large	green-yellow	2	very strong	high	medium-late
Höndü (FF)	straw-conical	large	loose	obovate	large	red-violet	1-2	strong	medium	late
İgikli	cylindrical	large	loose	elliptic	large	green-yellow	2	strong	medium	medium-late
İpek	winged-conical	large	medium	elliptic	large	yellow	2-3	strong	high	medium-late
Karacelik	straw-conical	large	medium	round	large	blue-black	2-3	medium	high	medium
Karacelik (FF)	straw-conical	large	dense	elliptic	medium	black	3-4	strong	high	medium
Kozak beyazi	straw-conical	medium	loose	elliptic	large	green-yellow	2-3	strong-erect	high	medium-late
Kozak siyahı	straw-cylindrical	large	loose	round	medium	red-violet	2-3	medium-horizontal	medium	medium-late
Muşküle	straw-conical	large	loose	short elliptic	large	light-yellow	2-3	strong-erect	high	late
Ömancık	conical	large	loose	round	large	green-yellow	2	strong	high	late
Parmak	straw-conical	medium	loose	long elliptic	large	green-yellow	2-3	strong	high	medium
Pembe Gemra	winged-conical	large	loose	round	large	red-yellow	2-3	strong-horizontal	high	late
Razaki	straw-conical	large	loose	long elliptic	large	green-yellow	2-3	strong	high	medium
Siyah Gemra	straw-conical	medium	loose	ovate	large	violet	2-3	medium	medium	late
Tahannebi (FF)	winged-conical	medium	medium	ovate	large	light-yellow	1-2	strong	medium	early
Taravus beyazi	winged-conical	medium	medium	round	medium	light-yellow	2-3	medium-erect	medium	very early
RAISIN										
Yuvarlak										
Çakirkeşiz	winged-conical	medium	medium	round	small	yellow	-	strong	very high	medium
Sultani										
Çakirkeşiz	winged-conical	large	medium	elliptic	small	yellow	-	very strong	very high	medium
Besni	straw-conical	large	loose	long elliptic	large	yellow	3-4	strong	high	medium
Rumi	winged-conical	medium	dense	long elliptic	medium	yellow		strong	high	medium

* Functionally Female

Table 3: Brief ampelographic characterization of indigenous wine cultivars

Cultivar	Bunch			Berry			Growth and Yield			
	Shape	Size	Density	Shape	Size	Color	Seed	Growth-Habit	Yield	Maturity
Adekaraşı	winged	medium	dense	ovata	small	blue-black	2-3	medium	medium	medium
Reylence	conical	medium	dense	elliptic	small	light green	2-3	medium	medium	medium
Boğazkere	winged	medium	dense	round	medium	blue-black	2-3	strong	medium	late
Çel karası	shouldered	small	dense	elliptic	small	black	2-3	strong	high	medium
Ölmit	winged	medium	dense	round	medium	red-violet	1-2	strong	high	medium
Öbkülden	winged-conical	medium	dense	round	large	green-yellow	2-3	strong	high	medium-late
Enir	winged-conical	medium	dense	round	medium	green-yellow	2-3	strong	high	medium-late
Hasandede	conical	large	loose	round	medium	green-yellow	2-3	strong-erect	high	medium
Horoz karası	conical	medium	loose	long elliptic	large	black	2-3	medium	medium	early-medium
Kalecik karası	winged-conical	medium	dense	round	medium	blue-black	1-2	strong-erect	medium	medium
Karasakız	winged-conical	large	dense	round	medium	red	2-3	medium-erect	high	medium
Merince	winged-conical	medium	dense	elliptic	medium	green-yellow	2-3	strong	high	medium
Ekizgözü	winged-conical	large	dense	round	large	blue-black	2-3	strong-horizontal	high	late
Papat karası	conical	medium	dense	round	small	red-violet	2-3	strong	very high	very late
Sungurlu	conical	medium	loose	round	medium	green	2-3	strong	high	medium
Yapıncak	winged-conical	medium	dense	round	medium	green-yellow	2-3	strong-erect	very high	medium

Table 4: Rational presentation of ampelographic characters of indigenous grapevine cultivars subjected to clonal selection in Turkey

		Conical			Cylindrical			Winged		
		T	W	R	T	W	R	T	W	R
Bunch	Shape	79.2	68.8	100.0	16.7	-	-	-	18.8	-
	Size	Large			Medium			Small		
	Density	62.5	18.8	50.0	37.5	75.0	50.0	-	-	6.3
		Dense			Medium			Loose		
		8.3	81.3	25.0	25.0	6.3	50.0	66.7	12.5	50.0
Berry	Shape	Round			Elliptic			Ovate or Obovate		
		33.3	68.8	25.0	50.0	25.0	75.0	16.7	6.3	-
	Size	Large or Very Large		Large	Medium			Small		
		66.7	18.8	25.0	25.0	56.3	25.0	-	25.0	50.0
	Color	Green or Yellow(White)			Blue or Black			Rose-Red-Violet		
	62.5	43.8	100.0	16.7	37.5	-	20.8	18.8	-	
Seed	Seedless			1-2	2-3		3-4			
	T	W	R	T	W	R	T	W	R	
	-	-	50.0	33.3	12.5	-	54.2	87.5	25.0	4.2
Growth and Yield	Growth	Very Strong			Strong			Medium		
		T	W	R	T	W	R	T	W	R
		12.5	-	25.0	66.7	75.0	75.0	16.7	25.0	-
	Yield	Very high			High			Medium		
	-	12.5	50.0	62.5	56.3	50.0	33.3	31.3	-	
Maturity	Early or Early Medium			Medium or Medium Late			Late or very Late			
	16.7	6.3	-	50.0	75.0	100.0	33.3	18.8	-	

While the studies are progressing well in Marmara-Thrace and Aegean regions and satisfactorily in south-east and Mediterranean regions, serious retardation problems, especially in central regions, have to be overcome.

Brief ampelographic characters of indigenous grapevine cultivars subject to clonal selection are presented in Tables 2 and 3. Rational (%) presentation of the ampelographic character can also be seen in Table 4.

Turkish table grape varieties generally have large, conical and loose bunches; round or elliptic and large berries with 2-3 seeds; strong growth, high yield, and medium or late maturity. Our world-famous seedless varieties can be characterized by their winged-conical, medium or large bunches with medium density, round (Yuvarlak Çekirdeksiz) or elliptic (Sultani Çekirdeksiz), small, yellow berries, strong to very strong growth, and very high yield.

Indigenous wine grape varieties subject to clonal selection generally have winged or winged-conical, medium-size and dense bunches; round, medium to small berries with 2-3 seeds; strong growth, high yield, and medium time maturity. Kalecik karasi (RW) and Narince (WW) are the superior wine cultivars.

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