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A STUDY ON SELECTION OF PROMISING NATIVE CHERRY LAUREL (*PRUNUS LAUROCERASUS* L.) GENOTYPES FROM SAKARYA, TURKEY

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ABSTRACT

This study was carried out to select cherry laurel (*Prunus laurocerasus* L.) genotypes grown in Akyazi district of Sakarya province (northwest Turkey) during 2008-2009. Ten laurel cherry genotypes were selected based on their phenological, pomological and morphological characteristics. The flowering time of promising genotypes started in the first week of March and continued to the end of month. Harvesting started from the first week of July to the last week of October. Fruit weight of promising genotypes ranged between 1.08 to 5.33 g, while cluster weight showed a range of 21.60 to 109.27 g, with 19.06 to 27.00 number of fruits per cluster having stone weight of 0.220 to 0.546 g. The soluble solid content varied between 16.00 to 22.00 % with, pH value of 4.63 to 4.92 of the fruit juice.

Key words: Cherry laurel, phenology, pomology, selection

INTRODUCTION

Cherry laurel (*Prunus laurocerasus* L.) originated in central and west Asia, south-eastern Europe, and Anatolia. Turkey is one of the native spreading areas of many fruit species. One of these species is cherry laurel (*Prunus laurocerasus* L.) (Urgenc 1990; Islam 2002). In Turkey, cherry laurel is grown as a native fruit crop in the eastern Black Sea Region, Marmara and Aegean regions (Ustun *et al*., 2000). The local name of this species in the Black Sea and Marmara Regions is 'taflan' (Yaltirik and Efe 1994). Cherry laurel is consumed fresh or dried, in jam and marmalade, canned or pickled. The leaves (everygreen) and seed of this species are used for pharmaceutical purposes. The tree is also valuable for ornamentation as an evergreen broadleaf plant (Islam and Bostan 1996). It can easily be propagated by cuttings (Vannucci 1997, Bettini 2000). With its nutritional value for human health, cherry laurel is used for food additives such as flavouring (Leung and Foster 1996). Besides, it is also used as drug material in pharmacology. Many studies has been conducted to identify promising cherry laurel types in the Black Sea Region of Turkey (Islam and Odabas 1996, Karadeniz and Kalkisim 1996, Ayaz *et al*. 1997, Bostan 2001, Kucuk and Kolayli 2001). The aim of this study was to select native cherry laurel genotypes with high yielding and good fruit characteristics in Akyazi district (Sakarya province), and to describe their pomological and phenological traits.

MATERIALS AND METHODS

This study was carried out on wild cherry laurel trees those are grown in Akyazi/Sakarya district. Tree and fruit characteristics were measured to UPOV for Sweet Cherry for two years (2008 and 2009) (Table 1). The number of fruit per cluster was counted. Fruit weight, fruit width, fruit length, fruit stem length, fruit stem thickness, stone characteristics were also determined from 20 samples. Soluble solids (%), pH value, and titratable acidity (as % malic acid) and fruit sense of taste were determined based on three samples.

The times of blooming and harvest were recorded (Bostan 2001, Islam and Odabas 1996, Karadeniz and Kalkisim 1996, Kucuk and Kolayli 2001, Ayaz *et al.* 1997).

Table 1. Selection criteria, relative scores, classes in selected genotypes

Selection criteria	Relative scores	Classes	Scores of classes
Yield	30	(low-middle-high)	(3-5-7)
Fruit weight	20	(low-middle-large)	(3-5-7)
Cluster weight	20	(low-middle-high)	(3-5-7)
Fruit output	15	(low-middle-high)	(3-5-7)
Soluble solid	15	(low-middle-high)	(3-5-7)
Total score	**100**		

RESULTS AND DISCUSSION

The date of first bloom was between 05 March and 10 March. The full blooming time was between 15 March and 20 March. The blooming terminated late March for all genotypes. The harvesting of fruits started from early August which ended in early September. The harvest period was middle July for one genotype, late July for one genotype, early August for two genotypes, middle August for four genotypes, late August for one

Table 2: Phenological and some plant characteristics of selected genotypes

Genotype No	First bloom	Full bloom	The latest bloom	Harvest date	Yield (as related)
54 KY 01	05-10.03.	15-20.03.	30.03.	20.08.	Middle
54 KY 02	05-10.03.	15-20.03.	30.03.	01.08.	High
54 KY 03	05-10.03.	15-20.03.	30.03.	01.08.	High
54 KY 04	05-10.03.	15-20.03.	30.03.	15.08.	High
54 KY 05	05-10.03.	15-20.03.	30.03.	20.07.	Middle
54 KY 06	05-10.03.	15-20.03.	30.03.	15.07.	Middle
54 KY 07	05-10.03.	15-20.03.	30.03.	15.08.	High
54 KY 08	05-10.03.	15-20.03.	30.03.	10.08.	High
54 KY 09	05-10.03.	15-20.03.	30.03.	15.08.	High
54 KY 10	10-15.04.	15-20.04.	30.04.	10-15.09.	High

genotype and early September for one genotype. In addition, the yield of seven genotypes was high while middle for three genotypes (Table 2).

The color of matured and eatable fruit was red to purplish-black. The shapes of the fruits were roundish to slightly oblate. Cluster weights ranged from 21.60 g (54 KY 10) to 101.26 g (54 KY 07). Fruit number per cluster varied from 19 to 27. Individual fruit weight ranged between 1.08 g and 5.33 g. The fruit length ranged between 12.09 to 20.95 mm with fruit width of 10.58 to 21.94 mm having 3.07 to 6.49 mm fruit stalk length, 1.06 to 1.88 mm fruit stalk width, and 2.08 to 2.98 mm cluster stalk width (Table 3).

Table 3. Cluster and some fruit characteristics of selected genotypes

Genotype no	Cluster weight (g)	Fruit numbers of per cluster	Fruit weight (g)	Fruit lenght (mm)	Fruit width (mm)	Fruit stalk length (mm)	Fruit stalk width (mm)	Cluster stalk width (mm)
54 KY 01	92.45	21.40	4.32	17.82	21.34	5.28	1.88	2.38
54 KY 02	109.27	20.50	5.33	20.95	21.94	6.49	1.63	2.68
54 KY 03	53.34	21.00	2.54	16.61	15.39	4.27	1.29	2.98
54 KY 04	87.32	21.83	4.00	17.78	17.48	4.91	1.70	2.98
54 KY 05	58.32	27.00	2.16	16.29	15.46	5.29	1.06	2.35
54 KY 06	66.34	21.33	3.11	16.79	19.52	5.00	1.55	2.35
54 KY 07	101.26	20.75	4.88	18.39	19.47	5.40	1.87	2.40
54 KY 08	92.72	19.00	4.88	19.47	18.39	4.88	1.23	2.45
54 KY 09	89.25	20.66	4.32	20.41	19.59	5.26	1.42	2.86
54 KY 10	21.60	20.00	1.08	12.09	10.58	3.07	1.28	2.08

Table 4. The some chemical and fruit characteristics of selected genotypes

Genotype no	Skin colour	Fruit flesh colour	Fruit output (%)	Fruit shape index	Fruit flavor	PH	Soluble solid (%)
54 KY 01	Red	Cream	11.76	0.84	Middle	4.63	18
54 KY 02	Black	Grey	9.68	0.96	Middle	4.75	19
54 KY 03	Black	Grey	16.41	1.08	Sweety	4.92	20
54 KY 04	Red	Cream	11.43	1.02	Sweety	4.85	17
54 KY 05	Black	Grey	20.23	1.05	Sweety	4.65	20
54 KY 06	Black	Grey	17.55	0.86	Sweety	4.83	22
54 KY 07	Black	Grey	10.00	0.95	Middle	4.77	19
54 KY 08	Black	Grey	10.64	1.06	Middle	4.74	16
54 KY 09	Red	Cream	12.33	1.04	Middle	4.80	18
54 KY 10	Black	Grey	20.37	1.14	Sweety	4.70	19

Promising genotypes had red or black colored skins, cream org ray colored fruit fleshes and middle and sweet tasted fruits. Fruit output ranged from 9.68 to 20.37 %. Fruit shape index was between 0.86 and 1.14. Fruit juice of genotypes had pH values between 4.63 and 4.92, and they contained soluble solids from 17 to 22 % (Table 4). On the other hand, seed separation was free in nine genotypes, and jointed in one genotype.

In Turkey, cherry laurel types contain 17.6% soluble solids (Anonymous 1995). Islam and Odabas (1996) averagely recorded 19.3.28 g fruit weight, 12 mm fruit width and 16 mm fruit length for promising cherry laurel types grown in Vakfikebir district (Trabzon province) in the Black Sea Region. Reporting promising 'Su' Cherry laurel genotypes from the Black Sea Region, Bostan (2001) reported that they are very juicy and have attractive flesh colours high cluster weights and high soluble solids contents.

Conclusion: According to results obtained from the study, it was found that genotypes seen as promising have similar characteristics with those grown in other areas in Turkey. Thus, it may be concluded that these genotypes should be grown in controlled environment and further multiplication should be by vegetative production. However, adaptation studies should be continued for promotion in other potential areas which is second phase of the selection process.

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