Evaluation of Apricot Genotypes for Yield and Quality Attributes under Kashmir Conditions

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Introduction

Apricot (*Prunus armeniaca* L.) native of Armeniaca, belongs to family Rosaceae. The countries under north western Asia contribute major share in apricot production annually followed by Turkey, Italy, Spain, Greece, France and the USA. A wild form of apricot known as *Zardalu* appears to be indigenous to India. Jammu and Kashmir produces most of the fresh and dried apricot in India. North-western Himalayan region exhibit wide variability in respect of morpho-physico-chernical characters of apricots. Considering the vast spectrum of genotypic variability in terms of seedling as well as clonal origin in Kashmir valley, the present study was undertaken for survey, evaluation and conservation of superior apricot genotypes.

Materials and Methods

An extensive survey programme of five districts of the Kashmir comprising Srinagar. Baramulla, Kupwara, Anantnag and Budgam were carried out during 2002-2004. Genotypes possessing desirable horticultural traits were collected and analysed in the laboratory. The observations were recorded on physico-chemical quality of fruit and yield on spot. The standard methods were adopted for recording the observations like fruit weight, fruit length and fruit diameter. Fruit shape, symmetry along suture, skin colour, separation of stone and kernel taste were recorded as per descriptor of IPGR1 (1984). Total sugar contents of the fruits was estimated following the standard method described by AOAC (1984) and TSS by hand refractometer. Titratable acidity was determined by titrating against 0.1N NaOH. The data gathered were statistically analysed as per Panse and Sukthame (1967).

Result and Discussion

Different apricot genotypes exhibited varying fruit characters. Data on fruit yield, fruit weight, fruit length, diameter, shape, symmetry along suture, skin colour, TSS, total sugar, acidity, separation of stone, stone weight, stone kernel taste and time of maturity have been presented in Table 1. Fruit yield/tree in different genotypes varied from 20 kg in APS 30 to 55 kg in APS 19. Maximum fruit yield recorded to APS 19, APS 8, APS 9 and APS 2 whereas minimum in APS 30. The fruit weight varied from 11.3 g (APS 26) to 91 g (APS 8). The minimum fruit length was recorded in APS 1, APS 26, APS 28 and APS 15. Whereas maximum in APS 8 APS 9. APS 4 and APS 2. Fruit diameter varied from 2.6 cm (APS 13), 5.2 cm (APS 8). The evaluated genotypes were round, oblong, flattened and round-flat in shape. APS 5, APS 8, APS 17, APS 27 and APS 30 bear fruits oblong in shape whereas APS 3, APS 18. APS 21 are flattened in shape and APS 1, APS 7, APS 13, APS 19 and APS 22 are round-flat shaped. Symmetry along the suture was recorded, all the genotypes were symmetrical along suture except APS 4, APS 5, APS 6, APS 7, APS 19, APS 22, APS 24 and APS 28 were orange whereas APS 18, APS 20, APS 21, APS 22, APS 23 and APS 25 were orange with red blush. Maximum total soluble solids were recorded in APS 7, APS 15, APS 16 and APS 17 whereas minimum in APS 29, APS 30, APS 26, APS 18 and APS 19. Total sugars varied from 0.4 per cent (APS 30) to 15.07 per cent in APS 6 genotypes. Minimum acidity 0.07 percent was noted in APS 25 whereas maximum 1.50 per cent in APS 28. Separation of stone was noted in all the genotypes under study. Clinging stone recorded in APS 6, APS 9, APS 11, APS 12 and APS 27, whereas semi-clinging was found in APS 1, APS 4, APS 7, APS 14, APS 17 and APS 25, rest all the genotypes were of free-stone separation type. Maximum kernel weight 4.5 g/kernel was recorded in APS 8, whereas minimum 1.3 g noted in APS 19, remaining genotypes having medium weight stone. APS 12, APS 14. APS 26 and APS 28 having bitter kernel rest all the genotypes were recorded sweet in taste. The fruit maturity in apricot genotypes ranged from 20th May (APS 18, APS 19 APS 20, APS 21, APS 22 and APS 23) to 7 July (APS 25, APS 26, APS 27, APS 28, APS 29 and APS 30). The maturity time differ at different topography and

Table 1. Fruit characters of different apricot genotypes collected from Kashmir valley

Name of genotypes	Approximate yield/tree (kg)	Fruit weight (g)	Fruit length (cm)	Fruit diameter (cm)	Fruit shape	Symmetry along suture	Skin colour	TSS (%)	Total sugar	Acidity (%)	Separation of stone	Stone weight (g)	Kernel taste	Time of maturity
APS 1	35.0	25.7	3.0	3.6	RF	Sy	Y	16.1	12.0	0.16	SC	3.0	S	25-30 June
APS 2	47.33	63.0	4.8	5.0	R	Sy	Y	14.5	11.0	0.31	F	2.2	S	25-30 July
APS 3	42.2	58.4	4.7	5.0	F	Sy	Y	15.5	12.8	0.20	F	3.0	S	25-30 July
APS 4	25.0	31.0	5.0	4.6	R	Sy	0	14.2	11.4	0.10	SC	2.6	S	-do-
APS 5	27.0	43.5	4.4	4.0	ob	Sy	0	9.8	10.1	0.10	SC	2.2	S	–
APS 6	32.7	53.0	4.5	4.6	R	Sy	0	13.5	15.7	0.15	C	2.0	S	–
APS 7	27.. 0	32.7	3.56	3,8	RF	As	Y	21.5	13.0	0.08	SC	3.2	S	28-30 June
APS 8	51.0	91.0	6.40	5,0	ob	Sy	Y	13.5	8.5	1.0	F	4.5	S	-do-
APS 9	47.7	76.5	5.40	5.2	R	Sy	Y	10.36	13.3	0.7	C	4.2	S	20-25 June
APS 10	32.3	22.0	3.7	3.4	R	Sy	0	14.1	10.5	1.2	C	1.36	S	-do-
APS 11	22.7	31.1	3.9	3.7	R	Sy	Y	14.0	10.0	0.61	C	1.50	S	-do-
APS 12	32.0	33.0	3.5	3.8	R	Sy	Y	13.13	10.7	0.69	C	2.3	B	-do-
APS 13	35.0	17.0	3.91	2.6	RF	Sy	V	16.6	10.2	0.68	F	3.1	B	-do-
APS 14	32.7	37.0	4.2	3.8	ob	Sy	Y	12.6	10.7	1.2	SC	3.1	B	28-1 July
APS 15	23.0	40.0	3.4	3.8	R	Sy	Y	18.8	8.9	0.9	F	2.8	S	-do-
APS 16	21.0	24.0	4.1	3.1	R	Sy	Y	18.2	9.2	0.3	F	2,2	S	-do-
APS 17	35.0	46.1	4.2	4.4	ob	Sy	Y	16.6	87	0.98	SC	3.2	S	-do-
APS 18	34.0	37.0	3.8	4.2	F	Sy	Orange with red bluish	10.0	12.5	0.36	F	2.6	S	20-30 May
APS 19	55.0	27.0	3.6	3.6	RF	As	0	9.6	12.3	0.30	F	1.3	S	-do-
APS 20	32.0	21.2	4.3	3.5	R	Sy	Orange with red bluish	13.2	10.5	0.09	F	2.0	S	-do-
APS 21	31.0	37.0	3.9	4.2	F	As	Orange bluish	12.0	9.8	0.11	F	1.5	S	-do
APS 22	36.0	37.0	4.2	4.1	RF	As	Orange & red bluish	13.0	11.5	1.1	F	2.6	S	-do- -do
APS 23	43.0	33.8	4.5	4,0	R	Sy	Yellow & red bluish	11.6	10.0	0.9	F	3.1	S	-do
APS 24	35.0	32.0	4.5	4.2	R	Sy	0	11.5	9.7	0.08	F	2.4	S	30 June
APS 25	31.0	31.3	4.2	3.7	R	Sy	Orange & red bluish	12.8	8.4	0.07	SC	1.3	S	5-7 July
APS 26	26.0	11.3	3.10	3.8	R	Sy	Y	11.7	8.8	0.97	F	2.3	B	-do-
APS 27	25.0	37.1	3.18	3.0	ob	Sy	Y	13.7	11.0	0.90	C	1.9	S	-do
APS 28	24.0	25.9	3.10	2.8	P	Sy	0	13.7	9.5	1.50	F	1.5	B	-do
APS 29	25.0	25.5	3.49	2.9	R	Sy	Y	11.5	8.8	0.80	F	1.8	S	-do-
APS 30	20.0	26.6	3.36	2.2	ob	Sy	Y	12.5	8.4	1.32	F	1.5	S	-do
St. Dev.	10.49	17.18	0.72	0.74	–	–	–	2.8	1.8	0.039	–	0.83	–	–
CV (%)	4.0	4.4	6.9	7.2	–	–	–	6.06	4.52	129.0	–	13.64	–	–
SEM±	1.93	2.6	0.08	0.075	–	–	–	0.69	0.23	0.16	–	0.11	–	–
LSD(P=0.05)		3.87	5.22	0.17	0.15	–	–	–	1.4	0.46	0.33		0.23	– –

Where R : Round, ob : oblong, AS : Asymmetrical, Sy : Symmetrical, F : Free stone, SC : Semi-clinging C : clinging, S : sweet, B : Bitter

microclimatic conditions. The fruits from Uri region mature earliest whereas apricot from Srinagar and adjoining areas matured late, in Ladakh and Kargil region they started ripening from August onwards (Bhat *et al.*, 2002). The present investigator concluded that a wide range of variability existed in apricot population in Kashmir valley. *Prunus dasycarpa* Ehrh is said to be grown in Kashmir and is considered to possess considerable variability (Wealth of India, 1969). The reason for variation in yield and quality attributes may be due to the tree having variable genetic constitution and agro-climatic conditions. The wide range of variation with regard to quality attribute have also been reported in different regions of the apricot growing areas (Zaffar *et al.*, 2004); Bhatia *et al.*, 1977; Bhat *et al.*, 2002).

Promising genotypes, *viz*, APS 2, APS 6, APS 7, APS 8, APS 9, APS 19 have been planted along with other recommended and standard varieties of apricot for further study.

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