

Research
Paper

MHP-7/2 a promising new multiple hybrid of pomegranate (*Punica granatum* L.)

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ABSTRACT

Studies carried out at farmer's field in Hiriur Chitradurga Distt. of Karnataka during October 2001-September 2002 on evaluation of ten multiple hybrid progenies in comparison with Bhagwa and Mridula, the two popular commercial cultivars of the region has revealed that MHP 7/2 was an outstanding progeny as the plants were dwarf, medium spreading habit, fruits were medium in size(180.18g). Arils were bold, attractive sparkling red in colour, seeds were very soft(2.35kg/cm²) edible quality of the fruit was excellent with high juice recovery(55.28%/ fruit).

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Key words : Multiple hybrid progeny, Fruit quality, Pomegranate

INTRODUCTION

Pomegranate (*Punica granatum* L.) is a well known and promising fruit crop of India belongs to the botanical family punicaceae. The hardy nature, low maintenance cost, fine table and therapeutic values, better keeping quality and possibilities to throw the crop into rest period when the water potential is low are some of the qualities which make the plant ideally suitable for semi arid and arid regions. In india it is grown in southern states, Gujarat, Uttar Pradesh etc. In recent past pomegranate has attained export potential and earning foreign exchange. Fruits are exported to European middle east, African, American and Asian countries. Ganesh, jyothi, G-137, and in recent years Bhagwa, Mridula and Ruby varieties gaining popularity among the farmers as well as consumers. Still there is a scope for improvement in the hybrid or variety which produced most of the desirable characters like attractive fruit skin, big sized fruit, attractive aril colour, bold and soft arils with high juice recovery. In the present study, an attempt was made to identify the superior genotype/hybrid which produced most of the above mentioned desirable characters.

MATERIALS AND METHODS

The multiple hybrids and Bhagwa and Mridula cultivars of pomegranate were planted at a farmer's field in Hiriur Chitradurga Distt. of Karnataka. Four plants under each replication/ variety were used for recording the data and the plants were grown with uniform cultural practices. The data were recorded for yield and quality characters of fruits. Physico-chemical characteristics were recorded from 5 randomly selected mature fruits from each replication. The TSS was estimated using a hand refractometer. Total sugar, reducing sugar, non reducing sugar and titratable acidity of juice was determined by titration method.(Srivastava and Kumar, 1994).

RESULTS AND DISCUSSION

The data recorded on the length, breadth, circumference, weight and volume of fruit are the indicators of fruit size. In general there was a narrow range of variation in the physical parameters of fruit among the multiple hybrid progenies and control cvs. Bhagwa

and Mridula. These differences were found statistically significant also and are presented in Table 1. Maximum length and breadth of fruit was recorded in MHP 24/3 (7.18 cm and 7.79 cm, respectively) followed by Mridula (6.81 cm and 7.42 cm, respectively) one of the control cv. However, fruit length was minimum in MHP 30/2 (6.23 cm) and fruit breadth was minimum both in MHP 7/2 and MHP 14/6 (6.73 cm each). MHP 24/3 exhibited maximum circumference of fruit (24.51 cm) and was minimum in MHP 14/6 (21.47 cm). However, another control cv. Bhagwa recorded the fruit circumference of 22.39 cm. The larger fruits in MHP 24/3 hybrid may be due to the hybrid vigour, this hybrid might have acquired the larger size character of fruit from it's one of the parent Ganesh. Similar observations were made by Keskar *et al.* (1990) in G-137 as compared to its parent Ganesh, Sreeramu *et al.* (1996) in cvs. Jyothi and Alandi. Chadha (1998) in GKVK-1 and G-137 and also in the hybrid No. 5.

Number of arils, weight of arils per fruit was significantly different between the multiple hybrids of pomegranate and are presented in Table 1. Highest number of arils per fruit was recorded in MHP 24/3 (574.42) which was at par with Mridula (control) (569.65), MHP 25/3 (547.23) and MHP 26/2 (515.83). The least number of arils per fruit was noticed in MHP 14/6 (379.25). Whereas, Bhagwa another control cv. recorded 458.90 arils per fruit. The aril content was highest in MHP 25/3 (72.47%) followed by Mridula (72.35%) a control cv. which were at par with all other multiple hybrid progenies of pomegranate except MHP 26/2 (69.41%). The weight of the arils per fruit was least in Bhagwa (control cv.) (66.30%) compared to any of the hybrids.

Significant differences were observed with respect to weight of 100 arils, juice recovery, juice percentage from 100 arils (Table 1). Weight of 100 arils was maximum in MHP 30/2 (31.21 g), which was at par with all the multiple hybrids except MHP 25/3 and 26/2. Weight of 100 arils was minimum in Bhagwa (24.99g) the control cv. Maximum juice recovery from 100 arils was noticed in MHP 30/2 (24.38 ml). It was least in Bhagwa (18.40 ml) a control cv. Another control cv. Mridula recorded juice recovery of 20.46 ml. Highest juice recovery from 100 arils was noticed both in MHP 30/2 and 30/8 (78.02%) and was least in MHP 37/6 (71.04%), followed by Bhagwa (73.66%) a control cultivar.

Highest juice recovery per fruit was noticed in MHP 30/2 (78.20%) which was at par with MHP 30/8 (77.72%), MHP 12/2 (77.23%), MHP 14/6 (76.95%) and MHP 7/2

(76.59%). The juice recovery was least in MHP 37/6 (71.29%) followed by Bhagwa (71.98%) one of the control cv. Whereas, another control variety Mridula recorded juice recovery of 75.43 per cent. The superiority of MHP 30/2 in the aril characters mainly attributed to the genetic make up of the plant. This hybrid might have obtained the desirable characters of arils either from Gulsha Rose Pink or Yercaud-1 or Ganesh. Similar desirable characters were observed by Sayed *et al.* (1985), Anbu *et al.* (1987), Jagtap *et al.* (1992), Singh (1994) and Sree Ramu *et al.* (1996) in some of the pomegranate varieties or selections.

It is not only aril character but the seeds present inside the aril also play a vital role in determining the superiority of a genotype. It is both the weight and hardness of seed will impart the edible qualities of the fruit. Very soft or mellow seeds coupled with low seed weight are the desirable characters of a ideal pomegranate variety. In this study, the seeds of most of the multiple hybrid progenies were soft and chewable, further it was comparable with the control cultivars also. The hardness of seed in multiple hybrid progenies ranged from 2.35 to 3.40 kg per cm² similarly, even in the control cultivars the hardness was from 2.5 to 3.00 kg per cm², with regard to weight of 100 seeds there was no much variation between the multiple hybrid progenies and the control cvs. In multiple hybrids as well as control cvs. the weight of 100 seeds ranged from 1.72 to 2.00 g. From among the multiple hybrid progenies 7/2 emerged as one of the best hybrid with respect to seed characters. In this hybrid lowest weight of 100 seeds (1.72g) and softest seed (2.35 kg/cm²) were recorded which is a clear indication that the hybrids of this progeny were superior for seed character. Soft seeds as well as low weight of 100 seeds may be due to heterozygosity and hybrid nature of this progeny. This hybrid might have acquired these two desirable characters from it's parents Gulsh Rose Pink, Kabul and Ganesh. Such of the soft seeds and least 100 seeds weight was noticed in Jyothi (Anbu *et al.*, 1987), Surkh Anar (Godara *et al.*, 1989) and Ganesh (Karale *et al.*, 1993 and Reddy *et al.*, 1998).

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