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Varieties of pomegranate (*Punica granatum*) in India

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Abstract

Pomegranate (*Punica granatum* L.) belongs to the family Punicaceae. It is an important fruit due to its nutritional and medicinal properties. Pomegranates are widely distributed around the world and, therefore, have a broad genetic diversity, resulting in differences in their physico-chemical parameters. The scientific community has focused on the disease and pest tolerance as well as having high yielding potential. This review aims to provide holistic information of the different varieties of pomegranate developed by state agricultural university and ICAR research institute in India. This review intends to provide a information regarding cultivar growing in all over India. Varietal difference, characteristics of varieties, yield potential and quality parameters of fruits.

Keywords: Aril, Anardana, Solapur lal, punicaceae, biofortified variety, pomegranate

Introduction

Pomegranate is one of the oldest known edible fruits and is capable of growing in different agro-climates ranging from tropical to temperate regions of the world. It is cultivated throughout the world in different micro-climatic zones of sub-tropical and tropical regions. In Western Himalayas, it grows up to 1600-3330 m above mean sea level. Contrary to this, good quality pomegranate fruits are produced in Deccan Plateau between altitudes of 270 and 900 m above mean sea level. It is well known that arid regions have vast potential for its intensive cultivation and quality fruit production with assured irrigation.

India is the world's leading countries in pomegranate production. The statistics on acreage and production of pomegranate are not available with Food and Agriculture organization at global level, however, estimated global cultivated area under pomegranate is around 282000 ha and production 3216000 MT. In India pomegranate is extensively grown in Maharashtra, Karnataka, Andhra Pradesh, Gujarat, and is picking up fast in, Himachal Pradesh, Rajasthan and Madhya Pradesh. Small areas are under cultivation in Tamil Nadu, Mizoram, Odissa, Nagaland, Lakshadweep, Jharkhand and Jammu and Kashmir. As per recent advance estimates for the year 2021-22. Total area in Maharashtra under pomegranate is 166.20000 ha and production is 1764000 Toones. (First Advance Estimates According to 2021-22).

Today, more than 500 varieties of pomegranates are being grown throughout the world (Kahramanoglu and Usanmaz, 2016) ^[5]. This review paper summarizes the varietal difference of pomegranate in India.

1. Ganesh

Also known as GBG-1 and selected by Dr. Cheema in 1936. A soft seeded selection from open pollinated seedlings of hard seeded Alandi. Later, in 1970, it was renamed as 'Ganesh'. Tree is evergreen with spreading habit. Flowering throughout the year; crop duration 140-150 days under Maharashtra condition. Fruit is round and smooth, pinkish yellow to reddish yellow rind colour, having soft seeds and light pink arils fruits weighing between 225 to 250 gm, with T.S.S. 16°B with acidity of 0.3%. The arils of this cultivar are sweet in taste with pink color in winter months and are whitish in warmer months. The juice percent showed variation which was 52.8% in mrig bahar and 51.5% in ambe bahar. The variety is susceptible to fruit borer (18.55%), leaf spot (PDI-15.72) and fruit spot (PDI-22.86). It is grown extensively in Pune, Solapur and Satara districts of Maharashtra.

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soft seeds. The yield potential is about 20-25 kg/plant after five years of planting. Economic yield commences from fourth year onwards.



2. Solapur Lal

Variety developed by ICAR-NRCP Solapur, (MS) crossing of Bhagawa x [(Ganesh x Nana) x Daru]. Solapur Lal is also known as a Biofortified pomegranate. It requires 160-165 days for maturation of fruits. It matures 15-20 days earlier than Bhagwa var., No. of fruits/tree 130-140, yield Potential 35-39 kg/tree, Fruit size is slightly lesser than Bhagawa, Aril & Rind colour is deep red, thickness of rind is medium, Vit. C, Anthocyanins, Iron and Zinc contains are significantly higher than Bhagawa var., TSS is 17.5-17.7° Brix, Seed texture is Harder than Bhagawa. Variety mainly used for Processing (Juice, value addition) and Table purpose.

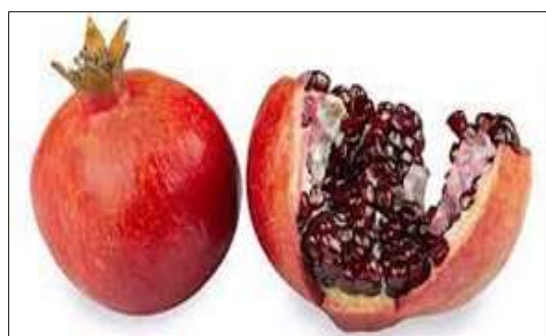


3. CAZRI Vishal

It is a cross between Ganesh x Khog released by Central Arid Zone Research Institute Jodhpur in 2020. Plants are medium in height, semi vigorous and spreading habit. It is an early maturing variety with attractive yellowish red colour and very

4. G-137

It was released by Mahatme Phule Krishi Vidhyapeeth Rahuri in the year 1989. It is the results of Clonal selection from open pollinated variety Ganesh. Sawant (1973) identified four superior clones from clonal population of Ganesh i.e., G - 107, G - 132, G - 133 and G - 137. Their evaluation showed that although yield differences were negligible, G - 137 was superior to Ganesh in respect of skin and aril colour, aril size and TSS (Keskar *et al.*, 1989,1990) [6, 7] and, therefore, it was recommended for released (Anon., 1986) [1]. This variety is cultivated to a limited extent in Maharashtra state. The growth habit of tree is spreading type with evergreen nature. The tree flowers throughout the year with three main flushes. Fruit is round and smooth and reddish yellow in colour. Fruit weight was maximum in mrig bahar (270 g), whereas, in ambe bahar it was 232 g / fruit. Arils are sweet in taste with light pink in color. The juice percent showed variation which was 55.2 percent in mrig bahar and 54.9 percent in ambe bahar. T.S.S. of the juice observed to be 17.0^{od} Brix in mrig bahar and 17.4^o Brix in ambe bahar. The acidity in mrig bahar was found to be 0.49 percent and 0.42% in ambe bahar. Seeds were found to be soft and softest in ambe bahar (1.04 kg/cm² pressure) compared to mrig bahar seeds (1.27 kg cm² pressure). The variety is susceptible to fruit borer (20.42%), leaf spot (PDI-18.45) and fruit spot (PDI-31.74).





5. P-23

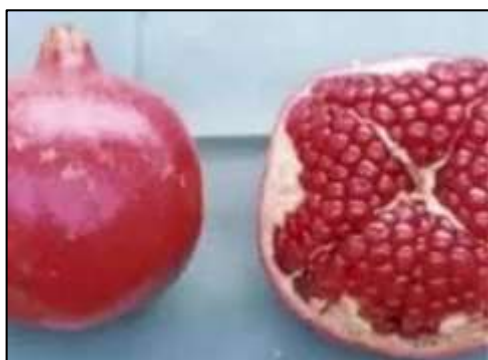
It was released by Mahatma Phule Krishi Vidyapeeth, Rahuri in the year 1986-87. Selection from the orchards of Muskat variety around Kolhar/Shirdi region. Fruits are smooth, yellow with red tinge, round in shape, arils are light pink in colour. Average weight of fruit is 340.00 g. Seed mellowness is 1.48 kg/cm² TSS (16.50%), acidity is 0.50%. Productivity (t/ha) 9.28. Resistant to the water stress, variety is most suited for plantation in medium soil, highly susceptible to the fruit borer & nematode, moderately susceptible to leaf spot & fruit spot.

6. P-26

It was released by Mahatma Phule Krishi Vidyapeeth, Rahuri in the year 1986-87. Fruits are smooth, yellow with red tinge, round in shape arils are light pink in colour Selection from Muskat variety. Average weight of fruit is 315.00 gm. TSS (15.50%), acidity 0.45%, Seed mellowness is 1.42 kg/cm² Resistant to the water stress. Productivity (t/ha) 9.85. Variety is most suited for plantation in medium soil. Highly susceptible to the fruit borer & nematode, moderately susceptible to leaf spot & fruit spot.

7. Mridula

It was released by Mahatma Phule Krishi Vidyapeeth, Rahuri in the year 1994. Var. suitable for Light to medium Soil type and Dry weather, Less humidity Climatic condition. Plant is an evergreen bush in nature with dark green foliage and spiny branches. Male, hermaphrodite and intermediate flowers are observed. It flowers in all three seasons. Fruits are medium in size (300-350 g) with reddish brown skin colour. The arils (sarcotesta) are deep blood red in colour, soft, and sweet in taste. Productivity (t/ha) 10.62. Variety is suitable for long distant market. Resistant to the water stress condition and well suited for arid region.



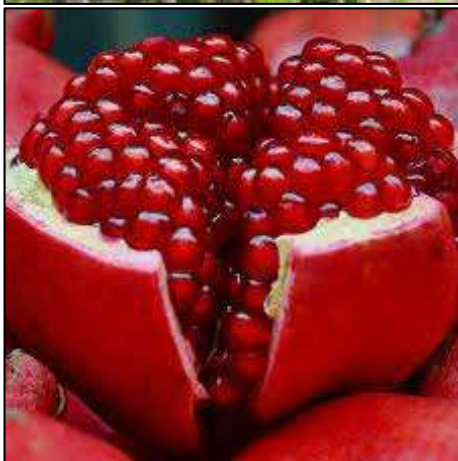
8. Phule Arakta

Released in Research Review Committee and Joint Agresco meetings during 2003 by MPKV, Rahuri. It is selection from F-2 progeny of cross between Ganesh x Gul-e-Shah Red, a Russian cultivar. It is reported that it has acreage next to Ganesh and this is the most sought-after variety among farmers. It is a heavy yielder with fruit maturity of 130- 140 days only. The growth habit of tree is spreading type with evergreen nature. Fruit is round and smooth and glossy; dark brick red in colour; arils are sweet in taste with dark red in color. Fruits are medium in size (182.70 g). Rind thickness is 0.24 cm. Seeds are soft (Mellowness – 1.12 kg/cm²). Fruits are more juicy (63.71%) with 15.89% T.S.S. and 0.45% acidity. Maximum anthocyanin content (55.50 mg/100g). Fruit yield 29.83kg/tree, 220.74 q/ha and average number of fruits per tree 78-90. The variety is suitable for both export and domestic market. The variety is susceptible to fruit borer (21.50%), leaf spot (PDI-17.02) and fruit spot (PDI-18.43).



9. Bhagwa

It was released by Mahatma Phule Krishi Vidyapeeth, Rahuri in the year 2003. Variety suitable for light to medium soil and dry weather with less humidity climatic requirement. Fruits are bigger in size (405.00 – 420.00 g). Fruit surface is glossy & attractive saffron rind colour, rind thickness is 0.35 cm, seeds are soft, days for maturity (180-190). Productivity (t/ha) 22.50. Resistant to internal breakdown. Variety is suitable for export in European and domestic market. Moderately susceptible to thrips, leaf spot and fruit spot.



11. Phule Anardana

It was released by Mahatma Phule Krishi Vidyapeeth, Rahuri in the year 2015. Fruits are more acidic, arils are bold and blood red in colour, highly suited for preparation of anardana. Fruits are medium sized, attractive red surface, recovery of anardana is 13.95% and anardana yield is about 1.58 kg/plant.



10. Phule Bhagwa Super

Variety suitable for light to medium type of soil and dry weather with less humidity developed by MPKV Rahuri in the 2013. Fruits are medium in size (271.00 – 299.00 g). Fruit surface is glossy, having attractive dark saffron rind colour, rind thickness is 0.35 cm, and seeds are soft. Fruits are more juicy (51.34%) with maximum anthocyanin content (53.12mg/100g). Days for maturity are 176.60. Fruit yield 30.6 kg/tree. Productivity (t/ha) 22.65. Attractive and glossy peel increasing its market value, dark red coloured and attractive arils. Suitable for both export and domestic market.



12. Jalore Seedless

Clonal selection from Ahore area of Jalore by Central Arid Zone Research Institute Jodhpur. Popular variety of Rajasthan, fruits round fruit, yellow with red tinge in colour, aril colour light pink to pink, juicy, taste sweet, TSS 15-16° Brix Arils are light pink in colour. It is soft seeded variety and plants semi vigours.



13. Jyoti (GKVK-1)

It is a open pollinated seedlings of Bassein Seedless and Dholka developed by University of Agricultural Sciences Dharwad in the year 1985. The fruits are medium to large sized, having attractive, yellowish red, more fleshy and pink aril. Fruits are very sweet, soft seeded and taste good. It yields moderately.



14. Yercaud-1

Horticulture Research Station, Yercaud, Tamil Nadu has developed this variety through selection. Sayed *et al.* (1985) [15] reported that a clone Acc. No. 455 had outstanding performance in Tamil Nadu. Later on, this was released as Yercaud-1. Fruits of this selection are of medium size with easily peelable rind. The seeds are soft with attractive deep purple arils.

15. Moga-Local

The plants are upright, spreading and bear profusely. It is very popular in Punjab and one plant produced 50 fruits weighing 180 g each. The skin of the fruit is creamy-yellow with pink blush. Arils develop pink colour; TSS 16⁰B, acidity 0.67% and seeds are hard.

16. RCR-1

Ramu *et al.* (1996) [14] reported a new seedless selection "RCR-1" from cv. "Alandi". It gave 267 fruits per tree in 10th year with average fruit weight of 220 g per fruit and average yield of 58.7 kg fruit/tree.

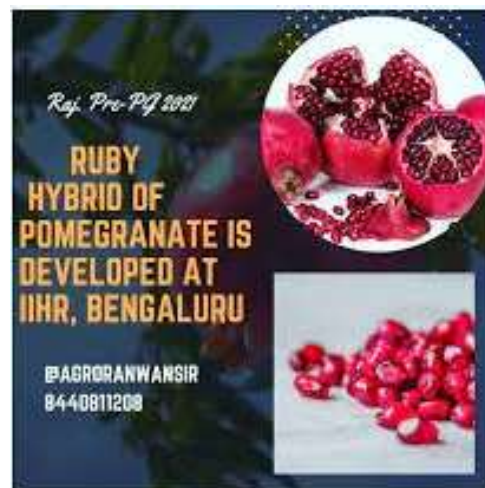
17. CO-1

Variety developed by Tamilnadu Agricultural University Coimbatore in the year 1983 through the Clonal selection method. It is a high yielding selection. Fruits are medium-

sized with attractive rind, soft seeds, higher pulp content and sweet taste.

18. Ruby

Variety developed through multiple crossing hybrid between Ganesh x Kabul x Yercaud and Gulesha Rose Pink by Indian Institute of Horticultural Research, Bengaluru in the year 1997. It has soft and red arils with good flavour. The plants are dwarf, prolific bearer, providing uniformly red fruits.

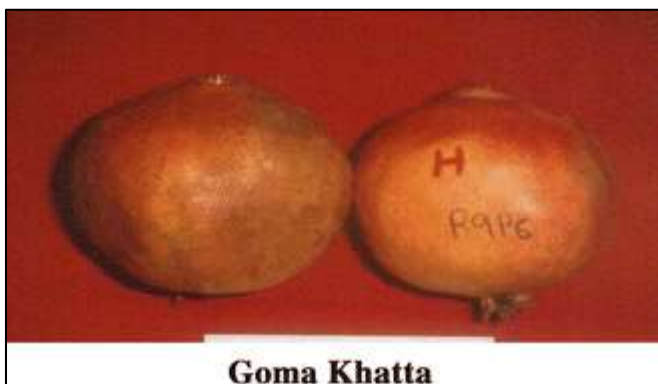


19. Amlidana

It is developed cross of Ganesh x Nana by Indian Institute of Horticultural Research, Bengaluru in the year 1999. Arils are highly acidic (4.8%), fruit medium size, plant dwarf, suitable for Anardana.

20. Goma Khatta

Variety developed through cross of Ganesh x Daru by Central Institute Arid Horticulture, Bikaner in the year 2010. Suitable for anardana. Yield 6.59 kg/plant and anardana yield 1.18 kg/plant. Seeds medium hard, juice 46.7%, TSS 14.5^o Brix and acidity 7.3%.



21. G-107

The variety of pomegranate is a clonal selection from Ganesh. The GBPUT-107 pomegranate seeds are organic and suitable for both indoor and outdoor use.

22. Red Silk

A smaller variety that produces great tasting fruit

23. Pomegranate Nana

A dwarf variety that is good for bonsai and containers

24. Parfianka

A popular variety that is good for eating fresh or juicing.



25. Alandi/Vadki

The fruit size is medium, blood red or deep pink with sweet acidic taste with hard seeds.



26. IIHR selection

It is a selection from the open pollinated seedlings. Mean fruit weight is approx 255 g with soft seeds. It provides quality fruits with heavy bearing capacity.

27. Kabul

The fruit size is large deep red rind mixed with pale yellow, dark red aril with slightly bitter juice.

28. Kandhari

The growth habit of tree is spreading type with evergreen nature. Fruit is round and smooth and pink in color with reddish tinge. Fruit weight per fruit was maximum in mrigbahar (317.6 g), whereas, in ambe bahar it was 190.4 g/fruit. Arils are sweet in taste with light pink in color with semi hard seeds. The juice percent showed variation which

was 52.3 percent in mrig bahar and 50.2% in ambe bahar. T.S.S. of the juice observed to be 14.4° Brix in mrig bahar and 14.8° Brix in ambe bahar. The acidity in mrig bahar was found to be 0.41 percent and 0.40% in ambe bahar. The variety is susceptible to fruit borer, leaf spot and fruit spot. The variety is suitable for different parts of Maharashtra and Gujarat states.



29. Paper Shelled

The fruit size is medium with pink aril of good quality, seeds are soft.



30. Spanish Ruby

Small to medium sized fruits with soft seeds.

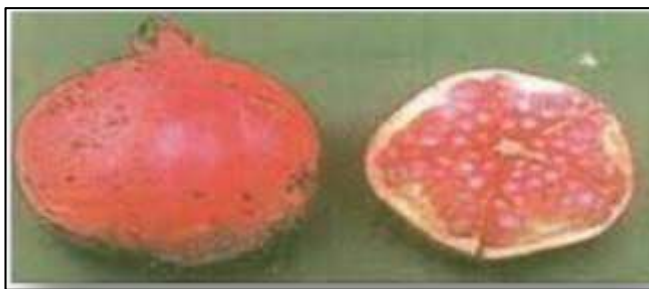
31. Pomegranate Selection-303

It is a open pollinated fruit of F₁ hybrids cross between Ganesh x Gulsha Red have characters *i.e.* yellowish brown colour of fruits, average fruit weight is 140 (g), Aril colour are blood red, Mellowness of seeds is soft having sweet taste, 45 no. of grains/100g, Grain to peel ratio is 1.80, Juice colour of fruit blood red having 80% Juice contains, 19.0% Total Soluble Solids and 0.64% acidity

32. Dholka

Fruits large, rind yellowish red with pinkish white aril. It is a popular cultivar of Gujarat.





33. Vellodu

Fruit medium to large in size, rind moderately thick, fleshy testa, juicy, seed moderately hard.

34. Poona

Fruit large in size, fleshy testa, deep scarlet or pink and red.

35. Bedana

Bedana is a moderate yielding variety having medium size plants. Fruits are of medium size with brownish or whitish rind and pinkish white taste. Seeds are soft. It also produces sweet juice of very good taste. Plants grow extremely well in arid and semi arid regions of Rajasthan. This variety is cultivated in Rajasthan and the plants are semi- spreading in habit; this has fruits weighing between 280 to 320 gm. Fruit is round and smooth. The rind colour is reddish yellow to pinkish yellow. Arils are sweet in taste with light pink in color. The seeds are very soft. The juice percent showed variation which was 51.72 percent in mrig bahar and 50.25% in ambe bahar. The T.S.S. is 15°B with acidity of 0.42%. The variety is susceptible to fruit borer (29.53%), leaf spot (PDI-22.66) and fruit spot (PDI-29.66). Prasad and Banker (2000) reported that Jalore Seedless showed its superiority with respect to fruit size, juice content, softness of seeds and quality characters of fruits with less cracking as compared to 9 pomegranate cultivars studied at Jodhpur (Rajasthan).

36. Muskat

This variety used to be cultivated in Maharashtra. The growth habit of tree is spreading type with evergreen nature. Fruit is round and smooth and pink in color with reddish tinge. Fruit weight was maximum in mrig bahar (310.27g), whereas, in ambe bahar it was 219.1 g / fruit. The T.S.S. is 16°B with acidity of 0.5%. Arils are sweet in taste with light pink in color. The juice percent showed variation which was 50.3 percent in mrig bahar and 49.7 percent in ambe bahar. Seeds are medium hard. The variety is susceptible to fruit borer, leaf spot and fruit spot.



37. Pomegranate Selection-130

It is a open pollinated fruit of F₁ hybrids cross between Ganesh x Gulsha Rose Pink have characters *i.e.* Greenish brown colour of fruits, average fruit weight is 107 (g), Aril colour are dark red, Mellowness of seeds is soft having sweet taste, 94 no. of grains/100g, Grain to peel ratio is 1.17, Juice colour of fruit blood red having 80% Juice contains, 15.8% Total Soluble Solids and 0.80% acidity

38. Jodhpur Red

It is favourite cultivars of arid and semi arid tracts of Rajasthan. The growth habit of tree is spreading type with evergreen nature. Fruit is round and smooth and pink in color with reddish tinge. The fruits of this variety weigh between 180 to 220 g. Arils are sweet in taste with pink in color. The juice percent showed variation which was 37.5% in mrig bahar and 39.5% in ambe bahar. The T.S.S. is 15.0°B with 0.6% acidity. Seeds were found to be hard with a pressure of 8.73 kg/cm² in ambe bahar and in mrig bahar seeds 9.41 kg cm² pressure. The variety is susceptible to fruit borer (25.74%), leaf spot (PDI-21.42) and fruit spot (PDI-15.32).



39. P-13

This is also a selection from Muscat variety Naik (1975). The growth habit of tree is spreading type with evergreen nature. Fruit is round and smooth and yellow in color with reddish tinge. Fruit weight was maximum in mrig bahar (233g), whereas, in ambe bahar it was 217g / fruit. Arils are sweet in taste with light pink in color. The juice percent showed variation which was 49.5 percent in mrig bahar and 53.5% in ambe bahar. T.S.S. of the juice observed to be 15.4° Brix in mrig bahar and 14° Brix in ambe bahar. Seeds were found to

be soft with ambe bahar fruit (1.64 kg/cm² pressure) compared to mrig bahar seeds (1.82 kg cm² pressure). The variety is susceptible to fruit borer, leaf spot and fruit spot.

40. P-16

This is also a selection from Muscat variety (Naik 1975). The growth habit of tree is spreading type with evergreen nature. Fruit is round and smooth and pink in color with reddish tinge. Fruit weight was maximum in mrig bahar (245g), whereas, in ambe bahar it was 201 g / fruit. Arils are sweet in taste with light pink in color. The juice percent showed variation which was 48.9% in mrig bahar and 52.7% in ambe bahar. T.S.S. of the juice observed to be 16.2° Brix in mrig bahar and 15.8° Brix in ambe bahar. The acidity in mrig bahar was found to be 0.47% and 0.38% in ambe bahar. Seeds were found to be soft with softest in ambe bahar (1.63 kg/cm² pressure) compared to mrig bahar seeds (2.14 kg cm² pressure). The variety is susceptible to fruit borer (26.97%), leaf spot (PD-I9.50) and fruit spot (PDI-23.33).

41. Gul-E-Shah

The growth habit of tree is spreading type with evergreen nature under Maharashtra condition. The leaf is entire and elliptic in shape. There is sparse flowering and fruiting. Fruit is round and smooth and pink in color with reddish tinge. Fruit weight was maximum in mrig bahar (175g), whereas, in ambe bahar it was 182 g / fruit. Arils are acidic in taste with dark pink in color. The juice percent showed variation which was 42.85% in mrig bahar and 49.76% in ambe bahar. T.S.S. of the juice observed to be 13.2° Brix in mrig bahar and 14.0° Brix in ambe bahar. The acidity in mrig bahar was found to be 1.5% and 1.4% in ambe bahar. Seeds were found to be medium hard with a pressure to break the seed of 5.28 kg/cm² in ambe bahar and in mrig bahar seeds 4.72 kg cm² pressure. The variety is less susceptible to fruit borer (8.54%), highly susceptible to leaf spot (PDI-31.76) and fruit spot (PDI-17.48). The variety though do not have commercial value but can be used in breeding for imparting aril colour and for resistance to fruit borer.

42. Pomegranate Selection-5

It is a open pollinated fruit of F₁ hybrids cross between Ganesh x Shirin Anar have characters *i.e.* apple red colour of fruits, average fruit weight is 130 (g), Aril colour are blood red, Mellowness of seeds is soft having sweet taste, 58 no. of grains/100g, Grain to peel ratio is 1.17, Juice colour of fruit dark red having 80% Juice contains, 18.4% Total Soluble Solids and 0.64% acidity.

43. Jodhpur Red/ Local

Fruits medium to large, Hard rind, Fleshy aril light pink juicy, Seed moderately hard.

44. Muscat Red

Commercially cultivate in Kolhar, Rahuri region of Maharashtra. Fruits are small to medium size with thick red rind, Aril fleshy with moderately sweet juice, seed are medium hard, High yielding better quality strains have been selected from the cultivar muscat.

45. Bassein seedless

This variety is cultivated to some extent in Karnataka state. Tree is evergreen with spreading habit. The fruit is round and

weight varies from 260 to 300 gm. The outer rind colour is red; the seeds are soft having light pink coloured arils. The T.S.S. is 16°B with acidity of 0.37%. There is limited area under this cultivar.

Conclusion

The review paper deals with a total of 45 varieties of Pomegranate. It comprises varieties with their important features, breeding method, year and institute from where they were released. The majority of fruit crops varieties are developed through selection followed by hybridization.

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Reference

1. Anonymous. Report on research work done on Horticultural crops. Research Review Sub Committee Report. Department of Horticulture, MPAU, Rahuri; c1986.
2. CAZRI (Central Arid Zone Research Institute). Annual Report 2020. Central Arid Zone Research Institute, Jodhpur; c2020.
3. Genetic Resources and Crop Evolution. 2005;52:959-966.
4. Girish Sharma, O.C. Sharma, B.S. Thakur. Systematics of fruit Crops. New India Publishing Agency, Pitam Pura, New Delhi; c2009. p. 257-262.
5. Kahramanoğlu İ, Usanmaz S. Pomegranate Production and Marketing. CRC Press; c2016.p. 148.
6. Keskar BG, Chaudhari KG, Karale AR. Varietal improvement in the pomegranate. Maharashtra J. Hort. 1989;4(2):66-68.
7. Keskar BG, Karale AR, Dhawale BC, Choudhari KC. "G-137": A promising clonal selection (Pomegranate). J Maharashtra Agric. Univ. 1990;15(1):105-106.
8. Keskar BG, Karale AR, Kale PN. Improvement of Pomegranate. In: Chadha KL, Pareek OP, editors. Advances in Horticulture, Malhotra Pub. House, New Delhi. 1993;1:399-405.
9. MPKV (Mahatma Phule Krishi Vidyapeeth). MPKV home page (online). Available from: <https://mpkv.ac.in>
10. Naik VB. Seedlings selection in pomegranate (*Punica granatum* L.) cv. Muskat. M.Sc.(Agri) Thesis, MPAU, Rahuri; c1975.
11. Patil AV, Karale AR. Pomegranate. In: Bose TK, editor. Fruits of India Tropical and Subtropical. Naya Prakash, Calcutta; c1985. p. 537-548.
12. Peter KV. Biodiversity in Horticultural Crops, Daya Publishing House, New Delhi. 2011;3:299-250.
13. Prasad RN, Banker GJ. Evaluation of pomegranate cultivars under arid condition. Indian J Hort. 2000;57(4):305-308.
14. Ramu BSS, Reddy PN, Hussain SA, Patil PB. A new seedless selection from pomegranate cv. Alandi. Curr. Res, Univ. of Agril. Sci. (Bangalore). 1996;25(4):72-73.
15. Sayed S, Ramdas S, Nanjan K, Muthuswami S. YCD-1 Pomegranate. South Indian Hort. 1985;33(1):67.