



Research Paper

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Effect of NAA, GA₃ and ethrel on yield and quality of phalsa (*Grewia asiatica* L.) under South- Saurashtra condition

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ABSTRACT : The present investigation entitled “effect of NAA, GA₃ and ethrel on yield and quality of phalsa (*Grewia asiatica* L.) under South-Saurashtra conditions” was carried out at the Fruit Research Station, Department of Horticulture, Junagadh Agricultural University, Junagadh, during the year 2006-2007. The experiment was laid out in a Randomized Block Design (RBD) with three replications. There were ten treatments comprised of NAA (100, 150 and 200 ppm), GA₃ (50, 100 and 150 ppm), ethrel (500, 750 and 1000 ppm) and control (water spray). The results of experiment revealed that NAA 200 ppm recorded maximum height of bush (177.33 cm) and length of shoot (99.17 cm) followed by NAA 150 ppm. An application of NAA 150 ppm, significantly increased number of flowers per shoot (151.21), number of fruits per shoot (60.74), 100 fruits weight (49.80 g), juice percentage (57.78 %) and minimum seed percentage (30.44 %) and the maximum yield per plant (1.71 kg/plant) and kg per hectare (5800 kg/ha) followed by NAA 200 ppm. The quality of fruits in terms of total soluble solids (25.23 %), reducing sugar (2.01 %) and total sugar (5.74 %) were significantly higher in treatment ethrel 1000 ppm followed by ethrel 750 ppm. Further, ethrel 1000 ppm also significantly reduced the span of harvesting (9.76 days) and number of picking (3.57) followed by Ethrel 750 ppm. An application of GA₃ 150 ppm significantly reduced acidity (2.55 %) and increased ascorbic acid content (39.50 %).

KEY WORDS : Phalsa, Plant growth regulators, Growth, Yield, Quality

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The phalsa (*Grewia asiatica* L.) belongs to the family Tiliaceae that yields delicious fruits of edible quality. India is considered to be the home of phalsa. Phalsa is one of the most popular sub-tropical and tropical fruit crops. It is commercially cultivated in Punjab, Haryana, Uttar Pradesh and Andhra Pradesh. In Gujarat it is grown in some parts of Ahmedabad, Vadodara, Kutch, Valsad and Saurashtra region. Phalsa is the most commonly used vernacular name for these fruits in India where there are several other dialectal names in customary usage for it-phalsa, *dhamin* and *shukri* in Hindi, Punjabi and Bengali, respectively. Botanically the fruit is a berry and highly delicious, sour to sweet in taste, with a desired pleasant flavour. It has a cooling effect. Ripe fruits contain 50-60 per cent juice, 10-11 per cent sugar and 2.0-2.5 per cent acid and good source of vitamin A and C. They are also a fair source of phosphorus and iron. The phalsa is usually propagated through seeds. It can also be grown from stem

cuttings but they are difficult to root. The best time of planting is February when the seedling can be taken from the nursery beds without the earth ball. Audus (1959) counted three factors responsible for the growth and development of plants. These are nutritional, genetical and hormonal. Crop improvement through genetically change is rather a difficult and time-consuming task while the other two are easy. The use of plant growth regulator like GA₃ (Gibberellic acid) has proved effective for increasing the size of berry or fruit and improved quality in crop like grape, citrus, ber etc. In phalsa, GA₃ (40 ppm) had been found to increase the fruit size and total yield (Randhawa *et al.*, 1959). As soon as the phalsa fruits are harvested, they should be sent to market immediately for sale for its perishable nature. Sometimes growers do not get satisfactory market price for the production. So it would be desirable to delay or to hasten the maturity of fruits. To serve the above purpose growth promoters or growth retardants are