

## Effect of plant growth substances on fruit quality of pomegranate

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### ABSTRACT

In pomegranate, the quality parameters like TSS, reducing sugar and total sugars were mostly influenced by the application of CPPU @ 2 ml/lit. The highest TSS (20.70%) was recorded by all the treatments of CPPU @ 2 ml/lit. at all the intervals. The CPPU applied at 90<sup>th</sup> days after first irrigation recorded highest reducing sugar (13.92%) and total sugars (15.65%). Application of Ethrel @ 500 ppm at 90<sup>th</sup> days after first irrigation resulted in reduced rind thickness (0.64mm) and acidity (0.40%). The treatment CCC @ 250 ppm at all the intervals recorded significantly highest yield (13.39kg).

**Key words :** Pomegranate, CCC, 6-BA, CPPU, Ethrel, Brassinosteroid.

Pomegranate (*Punica granatum* L.) is one of the famous table fruit mainly cultivated in tropical and sub-tropical eco-system. It is shrub commercially grown for its sweet and slight acidic fruit mainly used for dessert purpose (Hays, 1953). In India, the crop is commercially grown in arid and semi arid areas of Maharashtra, Gujarat, Rajasthan, Karnataka, Andhra Pradesh and Madhya Pradesh. At present, new orchards of pomegranate are being planted on large scale and the area under cultivation of this crop in India may be because of its versatile adoptability, hardy nature, low maintenance cost, steady and high yields, table and therapeutic value, better keeping quality and very good export potential.

Attractive red external fruit colour, red coloured and fully developed arils, high TSS and sugar acid blend are important attributes in assessing quality of pomegranate

Beneficial effect of various plant growth regulators have been reported on many fruit crops and proved beneficial for improving quality and yield. Mostly the plant growth substances have been used for fruit quality for inducing early uniform fruit ripening. The main objectives of the present investigation to assess the qualitative parameters, stages of application and ultimately the yield influenced by application of various plant growth regulators.

### MATERIALS AND METHODS

The field experiment was laid out in Randomized Block Design (RBD) with three replications and fifteen treatments at the Instructional-cum-Research orchard of Department of Horticulture, Mahatma Phule Krishi

Vidyapeeth, Rahuri during the year 2003. The experiment was carried out in *Mrig* bahar. Ninety representative uniform Mridula pomegranate plants were selected for study. The proper bahar treatment *viz.*, water stress for two months April and May, ploughing, harrowing, cleaning, training and spraying operations were given to those plants.

The data was recorded on two plants unit per treatment per replication. The five plant growth regulators *viz.*, CCC, 6-BA, CPPU, Brassinosteroid and Ethrel at different concentrations were sprayed at three intervals *i.e.* 30<sup>th</sup>, 60<sup>th</sup> and 90<sup>th</sup> day after first irrigation (DAFI). The stock solution for each plant growth regulator was prepared by dissolving 1 g in 100 ml distilled water and the volume made to 1000ml. Observations on rind thickness (mm), TSS (%), titratable acidity (%), reducing sugar (%), total sugars (%), non-reducing sugar (%) and yield/tree (kg) were recorded.

### RESULTS AND DISCUSSION

The data pertaining to rind thickness presented in Table 1 indicated that the differences due to various PGRs were found to be non-significant, however, numerically the maximum rind thickness was observed in control (0.74mm) and lowest in treatment Ethrel 500 ppm at 90<sup>th</sup> DAFI (0.64mm).

Highly significant differences were observed in respect of TSS due to application of various PGRs. The treatment CPPU 2ml/lit. at 60<sup>th</sup> and 90<sup>th</sup> DAFI recorded significantly maximum TSS (20.70%) as compared to other treatments, however, it was *at par* with the treatment CPPU 2ml/lit. at 30<sup>th</sup>, 60<sup>th</sup> and 90<sup>th</sup> DAFI (20.63%) and Brassinosteroid @ 2ml/lit. at 60<sup>th</sup> and 90<sup>th</sup> DAFI (20.57%). The treatment control recorded