

Effect of pre-harvest spray of growth regulators on growth, quality and yield of seedless grape genotypes

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ABSTRACT

The present study was carried out to know the response of seedless grape genotypes to growth regulators in New orchard Department of Horticulture, University of Agricultural Sciences, Dharwad during 2002-2003. Three genotype with two growth regulators were tried. Application of GA₃ 50 ppm + BR1 ppm twice after fruitset stage was more effective in increasing. The berry diameter, bunch weight, 100-berry weight and yield per vine in Arka Neelamani. Among the quality parameters Thompson seedless recorded the maximum TSS, reducing sugars and total sugars content.

Key words : Growth regulator, Genotype, GA3, Grapes, Brassionsteroid Br

Grape (*Vitis vinifera* L.) belonging to family vitaceae; perhaps the most widely cultivated fruit crop of the world in varying climatic zones extending from the temperate to the tropics. It is one of the most delicious, refreshing and nourishing subtropical fruits. The berries are good source of minerals and vitamins (B1, B2 and C). The fruits are consumed in fresh form as a table fruit and in the processed form as wine, raisin and fresh juice. Plant growths play an important role in viticulture. The growth regulators like gibberellic acid and brassinosteroid found to have profound effect on improving berry size, bunch weight, yield and quality of the produce (Prasad and Prasad, 1973 and Hayatt *et al.*, 1994).

MATERIALS AND METHODS

The investigation was carried out on four year old seedless grape genotypes from November, 2002 to March 2003 using uniform vines. The vines planted 1.8 x 1.20 meters were used for this study. A set of three uniform bunches were randomly selected in each genotypes and considered as one treatment with three replications. Totally 108 bunches were selected and labelled before imposing the treatments. The experiment was laid out in a split plot design with three genotypes in main plot and two growth regulators or growth regulator like substances in sub plot treatment.

Main treatments (genotypes)

G₁ – Thompson seedless

G₂ – Sharad seedless

G₃ – Arka Neelamani

Sub-treatments (growth regulators)

T₁ – Gibberellic acid (GA3) – 50 ppm

T₂ – Brassinosteroid (BR) – 1 ppm

T₃ – Gibberellic acid (GA3) – 50 ppm +
Brassinosteroid (BR) 1 ppm

T₄ – Untreated (control)

The vines were sprayed with growth regulators at the time of fruit set stage and repeated the same spray after one week.

RESULTS AND DISCUSSION

The result obtained from the present investigation have been discussed under following heads.

Berry diameter:

Pre-harvest spraying with GA₃ 50 ppm + BR1 ppm has recorded significantly maximum (1.81 cm) diameter in Arka Neelamani (Table 1) when compared to Thompson seedless and Sharad seedless over control. This difference in berry diameter may be attributed to differential characters of the genotype and also cell division and cell elongation at different stages of growth and development of berry. These results are in confirmation with findings of Hayatt *et al.* (1994).

Bunch weight:

Significant differences in bunch weight were noticed among the genotypes (Table 2). Maximum (298.75 g) bunch weight was recorded in Arka Neelamani upon spraying of GA₃ 50 ppm + BR1 ppm when compared to Thompson seedless and Sharad seedless over control. Increased bunch weight may be due to increase in number