

Effect of preharvest spray of growth regulators on yield and quality of seedless grape genotypes

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Accepted : April, 2010

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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 grape genotypes with two growth regulators were tried. Application of GA₃ 50 ppm + BR 1 ppm twice after fruit set stage was more effective in increasing leaf area, chlorophyll content and dry matter content of seedless grape genotypes whereas yield parameters such as bunch length, bunch width and yield per vine were maximum in Arka Neelamani genotype.

Key words : Grape, Growth regulator, Gibberellic acid, Preharvest spray, GA₃, Brassinosteroid, Br

Grape is an important delicious fruit crop and is consumed by large population. Seedless grape genotypes are excellent cultivars for both table and raisin making. These cultivars are known to have small berry size mainly because of compactness of bunch. To get good quality fruits which could fetch remunerative price in the market, use of growth regulators like gibberellic acid (GA₃) and brassinosteroids (BR's) have been found to be effective (Shikhamany and Prakash, 1994). Application of growth regulators like Brassinosteroid alone and in combination with gibberellic acid (GA₃) are known to increase the leaf area, chlorophyll content and dry matter content of the leaves and also improve the productivity of the seedless grape genotypes (Anitha, 1993 and Vivency, 1995).

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 results of the present study as well as relevant discussion have been summarized under following heads:

Leaf area:

The result obtained from this study revealed that application of GA₃ 50 ppm + BR 1 ppm recorded the highest leaf area in Arka Neelamani at all the growth stages viz., 15 DAT (192.62 cm²), 30 DAT (201.04 cm²), 45 DAT (210.83 cm²), 60 DAT (220.82 cm²) (Table 1). Whereas, Thompson seedless and Sharad seedless were found to be at par with each other. This could be probably due to the genotypic character of the vine and also exogenous application of brassinosteroid to plant induces various responses like stimulation and elongation of growth and retardation of senescence of the leaves. Similar findings were also observed by Vivency (1995) and Ramraj *et al.* (1997) in potato.