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# Effect of growth regulators on yield attributes and quality of sapota [*Manilkara achras* (Mill.) Forsberg] cv. KALIPATI

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## ABSTRACT

The study on effect of growth regulators on yield attributes and quality of sapota was carried out at Department of Horticulture, Marathwada Agricultural University, Parbhani during the year 2006-2007. Among the various treatments overall performance of treatment $T_3$ which receive $GA_3$ 150 ppm was found superior in increasing length, diameter, weight and total sugar content of fruit while treatment $T_6$ which received NAA 150 ppm found superior in increasing total yield per tree, total soluble solids and lower acidity content of fruit.

**Key words :** Growth regulators, Yield, Quality and sapota

Sapota is mainly valued for its sweet and delicious fruits. It has a higher sugar content, vitamins A, B, C and also useful minerals. A number of processed products such as jam, jelly, marmalade, toffee, fruit bar and flakes are prepared from this fruit. Another important feature of this crop is the ease in handling.

In Maharashtra an area of sapota is about 0.57 lakh ha concentrated in coastal region particular in Thane district.

Fruit quality of rainy (Hast Bahar) season fruit is some what poor as against Mrig Bahar fruit. Application of growth regulators like NAA and $GA_3$ have been used to increase length of fruit, diameter of fruit, yield and quality of fruits.

Rathod (1977) in his investigations used NAA (25-100 ppm) on kalipati sapota and observed that all the concentrations of NAA helped to increase the reducing, non-reducing and total sugars of the fruit, while T.S.S. was increased at higher (75 and 100 ppm) concentrations only. However, for further studies, the experiment was conducted to study the effect of growth regulators on yield attributes and quality of sapota.

## MATERIALS AND METHODS

The present study "Effect of growth regulators on yield attributes and quality of sapota" was carried out at Department of Horticulture, Marathwada Agricultural University, Parbhani. An experiment comprised of seven treatments *viz.*, $T_1$-$GA_3$ 50 ppm, $T_2$-$GA_3$ 100 ppm, $T_3$-$GA_3$ 150 ppm, $T_4$- NAA 50 ppm, $T_5$-NAA 100 ppm, $T_6$-NAA 150 ppm and $T_7$-control. A field experiment was laid out in 2006-2007 in Randomized Block Design with three replications. Three sprayings of each treatment was carried out, one at the initiation of flowering and another two at pea stage and lag phase of fruit development. The data obtained during the course of investigation were subjected to statistical analysis following the standard procedure for randomized block design.

## RESULTS AND DISCUSSION

Analysis of variance carried out for yield contributing attributes and quality parameter is presented in Table 1.

### *Yield and yield contributing attributes:*

*Length of fruit (cm):*

The foliar applications of growth regulators at different stages of fruit development did not influenced significantly the length of fruit as compared to control. The application of $GA_3$ 150 ppm ($T_3$) at fruit bud development stage was at par with treatments $T_1$, $T_2$ and $T_6$ for the fruit length. The lowest length of fruit was recorded by control ($T_7$).

*Diameter of fruit (cm):*

Data on diameter of fruit revealed that various growth regulators affect significantly fruit diameter as compared to control. The highest diameter was recorded by treatment $T_3$ ($GA_3$ 150 ppm) which was found significantly superior over all the treatments, while lowest diameter was found in control ($T_7$). The reports of Das and Mahapatra (1976) and Rathod and Amin (1981) indicated higher fruit diameter with $GA_3$ as compared to NAA in sapota are in agreement with the present findings.

*Weight of fruit (gm):*

Data regarding weight of fruit indicated significant difference among various treatments. The treatment $T_3$