**Original Research Article**

# INFLUENCE OF NEW GENERATION PLANT GROWTH REGULATORS AND FRUIT BAGGING ON ORGANOLEPTIC PROPERTIES OF GUAVA (*Psidium guajava* L.) *cv.* G-27


## ABSTRACT

The current study was performed at the field of Horticulture Research Orchard, Department of Horticulture, College of Agriculture, RVSKVV, Gwalior (M.P.) during 2022-23 and 2023-24. The main aim of the study was to identify the effect of new generation Plant Growth Regulators and fruit bagging techniques on the organoleptic characteristics (appearance, taste, color, aroma and overall acceptability) of guava fruits. The experiment was laid in Factorial Randomized Block Design comprising of 20 treatment combinations. The individual as well as combined effect of novel PGRs and fruit bagging was studied. Maximum score on various organoleptic characteristicswas recorded in treatment $P_5B_3$ (Salicylic acid 600 ppm + White polyethylene bag) while the minimum score was attained in $P_1B_1$ (control).The experiment shows the possibility of using white polyethylene bags in combination with salicylic acid 600 ppm treatment to improve the organoleptic properties of fruits of *Psidium guajava* L., maturity while reducing damage from insect pests.



**KEY WORDS:** Novel PGRs, fruit bagging, organoleptic properties, guava


## INTRODUCTION

Guava (*Psidium guajava* L.), is one of the foremost imperative tropical and subtropical fruit crops of India, which has a place to the family Myrtaceae. It is local of tropical America, extending from Mexico to Peru and continuously has ended up a commercial level of natural product in a few nations. It is developed in India since early $17^{th}$ century and gradually got to be edit of commercial centrality. Guava is fourth important fruit crop in area and cultivation after mango, banana and citrus. It is cultivated all through the tropical and subtropical locale.Guava variety Gwalior-27 variety is a selection from AllahabadSafedaseedlings. The fruitsize ranges from medium to medium large having cream

white, thick flesh with few seeds, acid sweet in taste and good quality. It is a heavy bearer variety with fruits mostly round in shape.

Plant bio-regulators (PBRs) are biochemical compounds which fortifies plant growth and efficiency when applied, indeed in little amounts at suitable plant growth stages. These are being broadly utilized in agribusiness to upgrade the productivity especially in horticultural crops but are not as predominant in field crops. The major part of Plant bio-regulators is to advance plant development and advancement through nutrient assignment and source-sink moves.Salicylic acid is also an endogenous growth regulator with phenolic nature, which participates in the regulation of several physiological processes in plants, such as stomata closure, ion uptake, inhibition of ethylene biosynthesis and transpiration (Bindhyachal*et al.,* 2016). Foliar application of Salicylic Acid may stimulate various plant physiological parameter *i.e.*, stomatal activity, ions uptake, seed germination, leave membrane response to electrolytes and growth rate. Salicylic acid acts as a growth regulator, is a natural compound present in the plant system, which plays an important role in many physiological processes. Salicylic acid is accepted as safe and natural chemical compound for pre and post-harvest application on fruits to delay ripening, softening and reduction in lipid peroxidation and chilling injury in fruits (Zhang *et al.*, 2003). Generally, salicylic acid could maintain firmness, reduce the loss of chlorophyll content, alleviate chilling injury, induce pathogenic resistance and improve nutritional value by enhancing bioactive compounds and antioxidants also maintain post-harvest quality, control diseases and alleviate physiological disorders during storage (Asghari *et al*., 2010).

Bagging techniques can protect fruits from pests and eliminates the use of pesticides, thus improves the quality of fruit. In the present study, different materials (newspaper bags, perforated polyethylene bags, muslin cloth bags and netted cloth bags) were used for on-tree bagging of guava fruit to improve fruit quality. Polyethylene bags reduced the damage by fruit fly to maximum extent followed by newspaper and muslin cloth bags. Economic analysis that all bagging techniques were cost effective. However, fruit covered with perforated polyethylene bags exhibited maximum BCR (benefit cost ratio) with better fruit quality.

## METHODOLOGY

1. **Experimental site**

The present experiment was laid out in the field of Horticulture Research Orchard, Department of Horticulture, College of Agriculture, RVSKVV, Gwalior (M.P.). The investigation was conducted during 2022-23 and 2023-24. Gwalior is situated at $26^0$ 13' N latitude and $78^0$ 14' E longitudes at an altitude of 211.5 m above mean sea level in Gird region. It has a subtropical climate with hot and dry summer where maximum temperature exceeds 45 $^0$C in May-June. The winters are cold and minimum temperature reaches as low as 2 $^0$C in December and January. Frost is expected from the last week of December to first week of February. Usually the monsoon arrives in the second fortnight of June and lasts till September. Occasionally light rains are expected during winter.

## 2. Experimental design

The experiment comprised of 20 treatments consisting of foliar spray of new generation PGR's (Brassinosteroid& Salicylic acid) and fruit bagging (different material) and control. It was laid in Factorial Randomized Block Design. Table no. 1 represents the treatment combination.

**Table no. 1. Treatment combination**

| S.No. | Notation | Treatment combination |
|---|---|---|
| **1** | **$P_1B_1$** | Control |
| **2** | **$P_1B_2$** | News paper |
| **3** | **$P_1B_3$** | White polyethene bag |
| **4** | **$P_1B_4$** | Brown paper bag |
| **5** | **$P_2B_1$** | Brassinosteroid (0.75 ppm) |
| **6** | **$P_2B_2$** | Brassinosteroid (0.75 ppm) + News paper |
| **7** | **$P_2B_3$** | Brassinosteroid (0.75 ppm) + White polyethylene bag |
| **8** | **$P_2B_4$** | Brassinosteroid (0.75 ppm) + Brown paper bag |
| **9** | **$P_3B_1$** | Brassinosteroid (1.5 ppm) |
| **10** | **$P_3B_2$** | Brassinosteroid (1.5 ppm) + News paper |
| **11** | **$P_3B_3$** | Brassinosteroid (1.5 ppm) + White polyethylene bag |

| | | |
|---|---|---|
| **12** | **$P_3B_4$** | Brassinosteroid (1.5 ppm) + Brown paper bag |
| **13** | **$P_4B_1$** | Salicylic acid (400 ppm) |
| **14** | **$P_4B_2$** | Salicylic acid (400 ppm) + News paper |
| **15** | **$P_4B_3$** | Salicylic acid (400 ppm) + White polyethylene bag |
| **16** | **$P_4B_4$** | Salicylic acid (400 ppm) + Brown paper bag |
| **17** | **$P_5B_1$** | Salicylic acid (600 ppm) |
| **18** | **$P_5B_2$** | Salicylic acid (600 ppm) + News paper |
| **19** | **$P_5B_3$** | Salicylic acid (600 ppm) + White polyethylene bag |
| **20** | **$P_5B_4$** | Salicylic acid (600 ppm) + Brown paper bag |

## 3. Experimental Procedure

For the observation of organoleptic parameters of fruits, five healthy fruits were selected randomly from each plant at full mature stage. The samples were evaluated for the organoleptic parameters on the score card called hedonic scale. The organoleptic parameters were quantified for different fruit grades and mean score of 5 judges was calculated, analyzed and used for further interpretations. Organoleptic evaluation by 5 panelist was carried out using a less than 2.50 to 7.5- 9.0 hedonic scale (< 2.50 = poor and 7.5 – 9.0 = excellent) water was also provided for the testers to rinse their mouth after each evaluation under a well-lighted room. The fruits were washed thoroughly before evaluation for the following heads:

### 3.1 Appearance

The appearance of guava fruit was judged by hedonic scale. For this panel of five judges was chosen who examined the appearance of fruit and score given by them was average.

### 3.2 Taste

The taste of guava fruit was judged by hedonic scale. For this panel of five judges was chosen who examined the taste of fruit and score given by them was average.

### 3.3 Color

The color of guava fruit was judged by visual method. For this panel of five judges was chosen who examined the color of fruit and score given by them was averaged.

The scoring was done by following pattern.

**Table: 2 sensory score for color of guava fruit**

| Color | Sensory scale |
|---|---|
| Yellow | 7.5 – 9.00 |
| Light green | 5.0 – 7.49 |
| Dark green | 2.5 – 4.99 |
| Green | < 2.50 |

### 3.4 Aroma

The aroma of fruits was evaluated by a panel of five judges on the basis of smell and blend of the fruit.

### 3.5 Overall acceptability

The overall acceptability of guava fruit was judged by hedonic scale. For this panel of five judges was chosen who examined the overall acceptability of fruit and score given by them was averaged.

## RESULT and DISCUSSION

### 4.1. Appearance

Through the analysis of the data presented in table 3 it was found that the interaction effect of the two factors i.e. novel PGRs and fruit bagging exerted statistically significant effect on the appearance of guava fruits. Maximum score on appearance of fruits in the first year, second year and pooled data was recorded in treatment $P_5B_3$ (Salicylic acid 600 ppm + White polyethylene bag) with 7.99, 7.81 and 7.90, whereas minimum score on appearance of guava fruits in the first year, second year and pooled data was observed in $P_1B_1$ (control) with 4.94, 4.28 and 4.61 respectively. Madhav et al., (2016) conducted a study on guava fruits of cv. Allahabad Safeda and treated with SA, kept at 10°C for 12 days. It was discovered that fruits applied with SA at 2 mM, showed lowest colour change without any conflicting effect on fruit appearance and taste. When SA is applied as post-harvest application, lead to the deferment of the ripening activity of

guava fruits significantly, possibly through inhibition of ethylene production process.Behera and Pathak, (2016) reported that pre-harvest application of $CaCl_2$ + Polyethylene bagging proved the best in enhancing post-harvest quality attributes *viz.*, fruit size, fruit weight, fruit firmness, organoleptic quality, total soluble solids, acidity, reducing sugar, non-reducing sugar and total sugar

**Table no. 3 Interaction effect (A X B) of novel PGR's and fruit bagging on Appearance of guava during 1st year, 2nd year and polled data**

| | **Appearance** | | | | |
|---|---|---|---|---|---|
| | **Novel PGR's** | | | | |
| | **1st year** | | | | |
| **Fruit bagging** | **$P_1$** | **$P_2$** | **$P_3$** | **$P_4$** | **$P_5$** |
| **$B_1$** | 4.94 | 6.64 | 6.88 | 6.92 | 7.76 |
| **$B_2$** | 6.89 | 7.19 | 6.96 | 7.10 | 7.10 |
| **$B_3$** | 7.36 | 6.91 | 7.36 | 7.70 | 7.99 |
| **$B_4$** | 7.30 | 6.68 | 7.14 | 7.44 | 7.50 |
| | **2nd year** | | | | |
| **$B_1$** | 4.28 | 7.31 | 6.79 | 6.93 | 7.07 |
| **$B_2$** | 6.61 | 6.83 | 7.08 | 7.57 | 7.35 |
| **$B_3$** | 7.01 | 7.29 | 7.41 | 7.17 | 7.81 |
| **$B_4$** | 6.81 | 7.11 | 7.25 | 7.40 | 7.58 |
| | | | | | |
| **$B_1$** | 4.61 | 6.98 | 6.84 | 6.93 | 7.42 |
| **$B_2$** | 6.75 | 7.01 | 7.02 | 7.34 | 7.23 |
| **$B_3$** | 7.19 | 7.10 | 7.39 | 7.44 | 7.90 |
| **$B_4$** | 7.06 | 6.90 | 7.20 | 7.42 | 7.54 |
| | **1st year** | | **2nd year** | | **Pooled** |
| **SE(M)** | **0.285** | | **0.328** | | **0.256** |
| **CD (5%)** | **0.816** | | **0.940** | | **0.732** |

### 4.2. Taste

Through the evaluation of the data presented in table 4 it was found that the interaction effect of the two factors i.e. novel PGRs and fruit bagging imposed statistically significant influence on the taste of guava fruits. Highest score on taste in the first year, second year and pooled data was found in treatment $P_5B_3$ (Salicylic acid 600 ppm + White polyethylene bag) with 8.88, 8.34 and 8.61, whereas minimum score on taste of fruits in the first year, second year and pooled data was recorded in $P_1B_1$ (control) with 5.17, 4.57 and 4.87 respectively. The results are in agreement with Kim *et al.*, (2008) who studied the effect of bagging material on fruit colouration and quality of fruit 'JanghowonHwangdo' peach and reported that the peach fruits bagged with white coated bags had higher soluble solids concentration, lower percentage of damaged fruits, increased sugar content up to 6.25% and higher anthocyanin and chlorophyll contents in the fruit skin. While those bagged with white bags showed higher soluble solids concentration, faster maturity and increased glucose content. This is because bagging can improve fruit skin colour through the reduction of chlorophyll content and increase fruit flavour through the increase in aroma volatile content.Ezzaz*et al.* (2016) investigated the effect of methyl jasmonate and salicylic acid on 6 sensory properties (skin and flesh colour, texture, taste, visual appearance and overall acceptability). All parameters were generally increased by methyl jasmonate and salicylic acid treatments compared to water-treated control and he water-treated fruits showed the lowest scores below the acceptability limit except for skin colour.

**Table no. 4 Interaction effect (A X B) of novel PGR's and fruit bagging on Taste of guava during 1st year, 2nd year and polled data**

| | **Taste** | | | | |
|---|---|---|---|---|---|
| | **Novel PGR's** | | | | |
| | **1st year** | | | | |
| **Fruit bagging** | **$P_1$** | **$P_2$** | **$P_3$** | **$P_4$** | **$P_5$** |
| **$B_1$** | 5.17 | 6.67 | 7.04 | 7.20 | 7.40 |
| **$B_2$** | 6.40 | 6.91 | 7.21 | 7.41 | 7.59 |
| **$B_3$** | 6.57 | 7.15 | 7.33 | 7.53 | 8.88 |

| | | | | | |
|---|---|---|---|---|---|
| **$B_4$** | 6.48 | 7.21 | 7.25 | 7.44 | 7.64 |
| | **2nd year** | | | | |
| **$B_1$** | 4.57 | 6.87 | 7.03 | 7.17 | 7.36 |
| **$B_2$** | 6.75 | 6.99 | 7.18 | 7.32 | 7.50 |
| **$B_3$** | 6.84 | 7.09 | 7.26 | 7.45 | 8.34 |
| **$B_4$** | 6.78 | 7.05 | 7.22 | 7.38 | 7.58 |
| | | | | | |
| **$B_1$** | 4.87 | 6.77 | 7.03 | 7.18 | 7.38 |
| **$B_2$** | 6.58 | 6.95 | 7.19 | 7.36 | 7.54 |
| **$B_3$** | 6.71 | 7.12 | 7.29 | 7.49 | 8.61 |
| **$B_4$** | 6.63 | 7.13 | 7.24 | 7.41 | 7.61 |
| | **1st year** | | **2nd year** | | **Pooled** |
| **SE(M)** | **0.211** | | **0.179** | | **0.159** |
| **CD (5%)** | **0.603** | | **0.512** | | **0.456** |

### 3. Color

The examination of the data presented in table 5 revealed that the interaction effect of the two factors i.e. novel PGRs and fruit bagging imposed statistically significant effect on the color of guava fruits. Maximum score on the color of fruits in the first year, second year and pooled data was found in treatment $P_5B_3$ (Salicylic acid 600 ppm + White polyethylene bag) with 8.62, 8.74 and 8.68, while the minimum score on the color of fruits in the first year, second year and pooled data was recorded in $P_1B_1$ (control) with 5.27, 5.45 and 5.36 respectively. The findings are in accordance with Lo'ay and Khateeb (2011) who while working on guava cv. 'Baladi' concluded that immersion in salicylic acid at high level 500 µM had advanced effect on fruit color (ho) compared with other concentrations of salicylic acid and control treatment. In the untreated fruits, rapid loss of green colour was experienced than the treated fruits during storage. The reason behind this is SA as pre-treatment application delays the fruit ripening process.Untreated fruits of guava lost their green colour after 7th day in storage. However, salicylic acid @ 300 ppm treated fruits retained green under ambient condition fruits up to 7th day of storage (Kaur, 2016). Sikandar *et al.* (2017) in present study guava fruits were treated with different

concentration of salicylic acid (0, 400-, 500-, 600- and 700-micron mol) and stored at room temperature for attributes evaluation. Data for fruit colour, weight loss per cent, fruit weight, decay per cent, fruit firmness, TSS, TA, total phenolic contents and total antioxidants were calculated at five days interval at ambient storage condition. Results depicted that treated fruits with 600-micron mol had lower values for colour loss 1.5, fruit decay 14.97 per cent and weight loss 20.03 per cent as compared to other SA concentration.Liu *et al.,* (2015) tested non-woven polypropylene bags of different collars to overcome the poor peach fruit colour problem and found that fruit bagged with white non-woven polypropylene (WH-N) developed the deepest red colour and accumulated the highest amount of anthocyanin in peels of peach cv. 'Hujingmilu' and 'Yulu'.

**Table no. 5 Interaction effect (A X B) of novel PGR's and fruit bagging on color of guava during 1st year, 2nd year and polled data**

| | **Colour** | | | | |
|---|---|---|---|---|---|
| | **Novel PGR's** | | | | |
| | **1st year** | | | | |
| **Fruit bagging** | **$P_1$** | **$P_2$** | **$P_3$** | **$P_4$** | **$P_5$** |
| **$B_1$** | 5.27 | 6.72 | 6.91 | 7.04 | 7.29 |
| **$B_2$** | 6.54 | 6.93 | 7.13 | 7.28 | 7.52 |
| **$B_3$** | 6.77 | 7.15 | 7.37 | 7.50 | 8.62 |
| **$B_4$** | 6.63 | 7.02 | 7.24 | 7.38 | 7.73 |
| | **2nd year** | | | | |
| **$B_1$** | 5.45 | 6.76 | 6.96 | 7.09 | 7.37 |
| **$B_2$** | 6.52 | 6.95 | 7.14 | 7.31 | 7.56 |
| **$B_3$** | 6.73 | 7.13 | 7.36 | 7.49 | 8.74 |
| **$B_4$** | 6.61 | 7.01 | 7.23 | 7.37 | 7.70 |
| | | | | | |
| **$B_1$** | 5.36 | 6.74 | 6.93 | 7.07 | 7.33 |
| **$B_2$** | 6.53 | 6.94 | 7.14 | 7.29 | 7.54 |
| **$B_3$** | 6.75 | 7.14 | 7.37 | 7.50 | 8.68 |

| | | | | | |
|---|---|---|---|---|---|
| **$B_4$** | 6.62 | 7.02 | 7.24 | 7.37 | 7.72 |
| | **1st year** | | **2nd year** | | **Pooled** |
| **SE(M)** | **0.177** | | **0.180** | | **0.175** |
| **CD (5%)** | **0.506** | | **0.517** | | **0.502** |

**4. Aroma**

The interaction effect of the two factors i.e. novel PGRs and fruit bagging on score on aroma of guava fruits presented in table 6 demonstrates that the interaction effect of novel PGRs and fruit bagging have significant impact on the aroma of guava fruits. Maximum score on aroma of fruits was recorded in the combination $P_5B_3$ (Salicylic acid 600ppm + White polyethylene bag) i.e.8.19, 6.68, 8.40 in the first year, second year and pooled data. While the minimum score on aroma of fruits was recorded in the combination $P_1B_1$ (control) i.e. 4.06, 4.40 and 4.23in the first year, second year and pooled data. Jia *et al.* (2005)studied the influence of bagging on aroma volatiles and skin colouration of 'Hakuho' peach and indicated that bagging enhanced fruit skin colour and increased the aroma volatile content.The results are in agreement with Sharma *et al.* (2020)observed the effects of five different types of bags on the rainy-season crop of 'Allahabad Safeda' guava. All bags significantly advanced fruit maturity and improved fruit weight, texture, visual appeal, quality, and functional attributes over unbagged (control) fruits.

**Table no. 6 Interaction effect (A X B) of novel PGR's and fruit bagging on Aroma of guava during 1st year, 2nd year and polled data**

| | **Aroma** | | | | |
|---|---|---|---|---|---|
| | **Novel PGR's** | | | | |
| | **1st year** | | | | |
| **Fruit bagging** | **$P_1$** | **$P_2$** | **$P_3$** | **$P_4$** | **$P_5$** |
| **$B_1$** | 4.06 | 7.02 | 6.50 | 6.64 | 6.78 |
| **$B_2$** | 6.32 | 6.53 | 6.78 | 6.88 | 7.06 |
| **$B_3$** | 6.71 | 7.00 | 7.12 | 7.29 | 8.19 |
| **$B_4$** | 6.51 | 6.83 | 6.97 | 7.11 | 7.30 |
| | **2nd year** | | | | |

| | | | | | |
|---|---|---|---|---|---|
| **$B_1$** | 4.40 | 6.42 | 5.90 | 6.04 | 6.04 |
| **$B_2$** | 5.72 | 5.93 | 6.18 | 6.29 | 6.29 |
| **$B_3$** | 6.11 | 6.40 | 6.52 | 6.68 | 6.68 |
| **$B_4$** | 5.93 | 6.23 | 6.37 | 6.51 | 6.51 |
| | | | | | |
| **$B_1$** | 4.23 | 6.72 | 6.20 | 6.34 | 6.62 |
| **$B_2$** | 6.02 | 6.23 | 6.48 | 6.58 | 6.62 |
| **$B_3$** | 6.41 | 6.70 | 6.82 | 6.98 | 8.40 |
| **$B_4$** | 6.22 | 6.53 | 6.67 | 6.81 | 7.00 |
| | **1st year** | | **2nd year** | | **Pooled** |
| **SE(M)** | **0.327** | | **0.329** | | **0.347** |
| **CD (5%)** | **0.938** | | **0.941** | | **1.071** |

**5. Overall acceptability**

The interaction effect of the two factors i.e. novel PGRs and fruit bagging on the overall acceptability of guava fruits presented in table 7 reveals that the interaction effect of novel PGRs and fruit bagging have significant effect on the overall acceptability of guava fruits. Highest score on overall acceptability of fruits was observed in the combination $P_5B_3$ (Salicylic acid 600ppm + White polyethylene bag) i.e. 8.29, 8.37, 8.33 in the first year, second year and pooled data respectively. While the lowest score on overall acceptability of fruits was recorded in the combination $P_1B_1$ (control) i.e. 5.82, 5.12 and 5.47 in the first year, second year and pooled data respectively.Buganic*et al.*, (2006) revealed the pre-harvest bagging with brown paper just after two months of flower initiation in mango fruits cv. Carabao minimized the rejected fruit percent and resulted in 70% of export-quality fruits, whereas 50% export-quality fruits were obtained from unbagged trees. Abbasi *et al.* (2018) noticed that bagging techniques can protect fruits from pests and eliminates the use of pesticides, thus improves the quality of fruit, by different materials viz. newspaper bags, perforated polyethylene bags, muslin cloth bags and netted cloth bags used for on-tree bagging of guava fruit to improve fruit quality.

**Table no.7 Interaction effect (A X B) of novel PGR's and fruit bagging on overall of guava during 1st year, 2nd year and polled data**

| | Overall | | | | |
|---|---|---|---|---|---|
| | Novel PGR's | | | | |
| | 1st year | | | | |
| **Fruit bagging** | **$P_1$** | **$P_2$** | **$P_3$** | **$P_4$** | **$P_5$** |
| **$B_1$** | 5.82 | 6.74 | 6.83 | 6.95 | 7.30 |
| **$B_2$** | 6.62 | 6.76 | 7.02 | 7.16 | 7.31 |
| **$B_3$** | 6.53 | 6.89 | 7.24 | 7.44 | 8.29 |
| **$B_4$** | 6.76 | 6.99 | 7.20 | 7.40 | 7.66 |
| | 2nd year | | | | |
| **$B_1$** | 5.12 | 6.84 | 6.67 | 6.80 | 6.99 |
| **$B_2$** | 6.42 | 6.67 | 6.89 | 7.12 | 7.21 |
| **$B_3$** | 6.62 | 6.93 | 7.09 | 7.25 | 8.37 |
| **$B_4$** | 6.58 | 6.89 | 7.05 | 7.10 | 7.44 |
| | | | | | |
| **$B_1$** | 5.47 | 6.79 | 6.75 | 6.87 | 7.15 |
| **$B_2$** | 6.52 | 6.72 | 6.95 | 7.14 | 7.26 |
| **$B_3$** | 6.58 | 6.91 | 7.16 | 7.34 | 8.33 |
| **$B_4$** | 6.67 | 6.94 | 7.13 | 7.25 | 7.55 |
| | **1st year** | | **2nd year** | | **Pooled** |
| **SE(M)** | 0.131 | | 0.115 | | 0.115 |
| **CD (5%)** | 0.378 | | 0.329 | | 0.330 |



## CONCLUSION

A thorough observation of the result obtained in this study reveals that a combination of novel PGRs and fruit bagging has significant influence organoleptic properties of guava. It is concluded that $P_5B_3$ (Salicylic acid 600ppm + White polyethylene bag) played the most prominent role in enhancement of appearance, taste, aroma, color and overall acceptability of

guava fruits among all the treatment combinations. Therefore, it can be adopted by the guava growers to enhance the marketability of fruits.

Disclaimer (Artificial intelligence)

Author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc.) and text-to-image generators have been used during the writing or editing of this manuscript.



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