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Effect of Fruit Bagging on the Yield and Quality of Guava (*Psidium guajava*) in Rainy Season

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Introduction:

Guava (*Psidium guajava* L.) belonging to family Myrtaceae, is the fifth most important fruit crop of India. It is a delicious and nutritious fruit rich in vitamin C (200-300 mg/100 g of pulp), calcium, mineral and phosphorus (Mitra and Sanyal, 2004). India shares 4% of the world production of guava producing 3.668 mt from 0.268 mha area with the productivity of 4516 mt ha-1 (Anonymous, 2021-22). Guava is one of the most important highly productive fruit crops and grown commercially throughout sub-tropical and tropical regions of the world. Uttar Pradesh, Bihar, Rajasthan, Madhya Pradesh and Maharashtra are the major guava growing states in the country. However, parayagraj of Uttar Pradesh has the reputation of growing best quality guava fruits in the world (Maji, 2010). Guava is a climacteric fruit and used as fresh fruit as well as making jam, jelly, paste, toffees, candy etc. Guava is available in cheap rate and popularly known as 'apple of plains' and 'poor man's apple'. In north Indian agro-climate conditions guava flowers twice in a year-first in April-May for rainy season crop and then, September-October for winter season crop. Generally, fruit yield is more in rainy season crop as compared to winter season (Rathore and Singh, 1974; Singh et al., 2000a), but fruits of rainy season crop is poor in tasted quality (Meena, 2016) and more infestation of pests and diseases in comparison to winter season (Rawal and Ullasa, 1988).

Guava is a climacteric fruit and excellent source of ascorbic acid, i.e., vitamin C, dietary fiber, pectin and minerals. Guava fruits are used as fresh fruit as well as for making jam, jelly, paste, toffees, candy etc. the practice of preharvest bagging has been extensively used in several fruit crops to improve skin colour and to reduce splitting,

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mechanical damage, and sunburn of the skin. Preharvest bagging also reduces agrochemical residues in the fruit and improves insect, disease, and bird damage control. It was also reported that very attractive fruit weight can be achieved by pre-harvest bagging which enhance the export potentiality and better profit for growers.

Material of bagging

Five year old guava trees of uniform vigor and size will be selected for study. All the trees will be maintained under uniform cultural practices during the course of investigation. The plants will be fertilized with recommended doses of manure and fertilizers. Weeding, irrigation and insect pest and disease management will be done as and when necessary. Bagging of fruits will be done in 15 days after fruit set. Data on fruit characters like weight of fruit, diameter of fruit will be taken after harvest. Quality parameters like TSS (^{0}Brix) and acidity etc will be recorded and will be analyzed statistically.

The fruits will be covered with different coloured polyethene bags (white polythene, Black polythene, Blue poiythene, yellow polythene and white paper, brown paper, newspaper and control (without Bagging). The experiment consist of Eight types of bagging, namely, bagging with white polythene (T_1), bagging with black polythene (T_2), and bagging with yellow polythene (T_3), bagging with blue polythene (T_4), bagging with brown paper (T_5), bagging with newspaper (T_6), white paper (T_7), control without bagging(T_8).

Post- Harvest Observation

After Harvest observating on various physical parameters, bio-chemical characteristics and organoleptic tests of guava under different treatments will be recorded:

(A) Physical parameters:

These properties include Fruit girth (cm), Fruit diameter (cm), Fruit weight (g), Pulp (g), Pulp percentage, Seed weight (g), Seed percentage, Specific gravity etc. Size and shape of materials are important because they are used in screening solids to separate foreign materials and grading of fruits.

(B) Biochemical parameters:

Biochemical parameter i.e., TSS (^{0}Brix), Acidity (□), Vitamin C (mg/100g) TSS/acid ratio after harvesting for all genotypes.

(C) Organoleptic test:

The organoleptic quality is defined as the results of evalusting water based on smell, Appearance, Taste, Colour, Texture, Aroma. It can be interpreted as a health risk and a problem in the water source, its treatment, or in the water network.

(D) Economic

To examine the economic feasibility of orchard while studying the economics of

guava cultivation, four indicators were used viz., net present value (NPV), internal rate of return (IRR), cost benefit ratio and payback period.

(E) Physical damage (%)

The physical and mechanical deterioration caused by the presence of fungi at the epidermis of guava, was visually evaluated using damage from 50% to 80%.

References:

1. Brar J S, Arora N K, Kaur Kirandeep, Kaur Gagandeep, Gill K S and Gill M. I. S. 2019. Fruit bagging for improving quality of rainy season guava under punjab conditions Agric Res J September 56 (3): 475-479
2. Fan X and Mattheis J P 1998. Bagging 'Fuji' apples during fruit development affects colour development and storage quality. Hortic Sci 33:1235–38.
3. Martins MC, Amorim L, Lourenço SA, Gutierrez ASS, Watanabe HS. 2007. Incidence of postharvest damages in guavas at the wholesale market of Sao Paulo and its relationship to pre harvest bagging. Rev Bras Frutic 29:245–248. doi: 10.1590/S0100-29452007000200011.
4. Meena Kamal Ram, Maji Sutanu, Kumar S., Parihar Dushyant and Meena D. C. 2016. Effect of Bagging on Fruit Quality of Guava *International Journal of Bio-resource and Stress Management* 7(2):330-333
5. Rahman Hafizur, Akter Anwara, Rahman Jubaidur, Riad Mukaddasul Islam, Rahman M.M. 2017. Effect of Fruit Thinning and Bagging on the Yield and Quality of Guava Research & Reviews*: Journal of Agricultural Science and Technology* ISSN: 2278-2206.