



A SCIENCE AND TECHNOLOGY NEWSLETTER

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PROMISING TECHNOLOGIES

Sett way of growing sugarcane for fungal treatment

Owing to practical difficulties in handling voluminous planting material (setts) in sugarcane, the increased duration of fungicide treatment, although effective to manage important fungal diseases could not be practiced.

To address this issue, a modified fungicide treatment through low pressure diffusion technique in a short duration of treatment was evolved with a lab prototype at ICAR-SBI, Coimbatore. The prototype was validated for sett treatment with fungicides and microbes (*Pseudomonas fluorescens*, *Azospirillum*, *Glucanoacetobacter* and *Phosphobacterium*) for disease management and growth promotion. During the evaluation for various inputs, the results on tissue bioassay, green house and field experiments indicated that the uptake and efficacy of fungicides/microbes was found to be similar for both the methods of treatment



Sett treatment devices are in operation for effective treatment of fungicides in sugarcane setts to manage red rot and smut.

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Pre-harvest sprays of ethylene inhibitors improved the postharvest shelf life and quality of Amrapali mango fruits

Mango (*Mangifera indica* L.) is an economically important fruit crop, known for its delicious taste, exceptional flavour and high nutritive value. Being metabolically active even after harvest, the fruits keep well only for 5-6 days as they attain full ripe stage and deteriorate eventually. Several postharvest

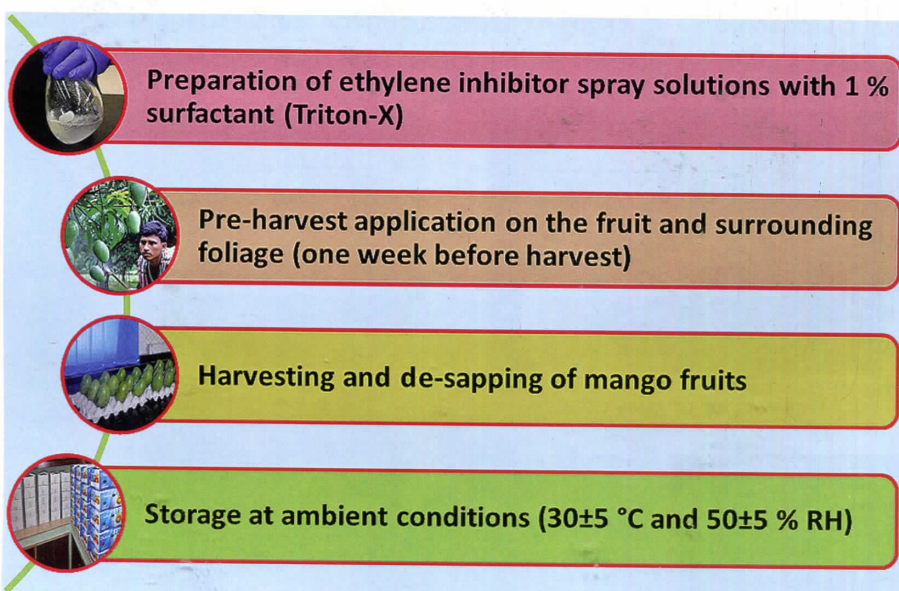


Treated fruits Untreated fruits
Mango fruits after 9 days of storage

Comparison of the quality of treated and untreated fruits

Parameter	Control fruits	Treated fruits
Storage life (days)	6.0	9.0
Physiological loss in weight (%)	9.46	5.07
Texture (N)	9.09	22.73
Total colour change (ΔE)	20.12	10.47
Ethylene production rate ($\mu\text{l C}_2\text{H}_4 \text{ kg}^{-1} \text{ h}^{-1}$)	2.32	0.21
Respiration rate ($\text{ml CO}_2 \text{ kg}^{-1} \text{ h}^{-1}$)	176.52	75.31
Soluble solids content ($^{\circ}\text{B}$)	22.18	17.70
Titrateable acidity (%)	0.54	1.38
Total antioxidant activity ($\mu\text{mol Trolox g}^{-1}$)	639.16	694.20
Malondialdehyde content (nmol g^{-1})	4.48	1.12
Pectinmethylesterase activity ($\mu\text{mol acid min}^{-1}$)	0.186	0.122
Ascorbic acid content ($\text{mg}/100 \text{ g}$)	21.39	23.25

Methodology



treatments are in vogue for enhancing the shelf life of fruits, yet research is going on to find out still better approach(es) for extending the shelf life and maintaining the postharvest quality of fruits during storage and subsequent marketing. Late pre-harvest exogenous application of various compounds is gaining importance as this provides enough pre-harvest interval (PHI) for the chemical residues to disintegrate. Under this paradigm, we have tried three different plant growth regulators viz.

amino ethoxy vinylglycine (AVG), salicylic acid (SA) and sodium nitroprusside (SNP) as an NO donor each at three different concentrations.

Major advantages and practical implications

- Sodium nitroprusside @ 100 μM extended the shelf life of treated mangoes up to 9 days.
- Pre-harvest application of SNP would enable the farmers to harvest the mango fruits at optimum maturity and allows them to ripe at the will of stake holders.
- Helps farmers/wholesalers/traders to store or transport their perishable mangoes to longer distances at ambient conditions.
- Facilitates processors to procure raw materials from longer distances with low investment on non-refrigerated carriers.
- Cost-effective with Benefit : Cost ratio 7.94.

Vijay Rakesh Reddy, S^{1,2} and R.R. Sharma¹

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