

Full Length Research Paper

# Calcium chloride sprays performance on ripening and shelf-life of mango fruits (*Mangifera indica* L.) Cv. totapuri

Peter A\*, Edwin E

Department of Crop Science, College of Agriculture, Animal Sciences and Veterinary Medicine, University of Rwanda, Busogo-Rwanda.

\*corresponding author: [erukae@yahoo.fr](mailto:erukae@yahoo.fr)

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**Studies on performance of calcium chloride sprays on ripening and shelf-life of mango fruits (*Mangifera indica* L.) Cv. Totapuri was carried out at the "A" block of mango orchard at UAS, Bangalore, GKVK Campus, Karnataka, India. Mango trees were sprayed with 0.50%, 1.00% and 1.50% CaCl<sub>2</sub> at 30 days and 15 days before harvest. The results revealed that spraying of CaCl<sub>2</sub> delayed the process of ripening of fruits when compared to fruits from control trees. Mango Cv. Totapuri took more number of days for ripening (19.89 days) when trees were sprayed with 1.50% CaCl<sub>2</sub> at 30 days before harvest. The shelf-life also was extended in mango Cv. Totapuri trees sprayed with 1.50% CaCl<sub>2</sub> at 30 days before harvest (25.89 days).**

**Keywords:** Ripening, shelf-life, calcium chlorride, totapuri

## INTRODUCTION

Cv. Totapuri or Bangalore, collector, Gili Mukku is a commercial variety of South India, it is a heavy yielder and it is regular bearing. Fruit is medium to large and it has a prominent beak in shape of about 6-8 inches. Colour is green yellow. The fruit quality is good. That cultivar contains Vitamin A and C. There is a central large seed in these mangoes covered by the pulp that has a pale to bright yellow colour.

## MATERIALS AND METHODS

Study on performance of calcium chloride sprays on ripening and shelf-life of mango fruits (*Mangifera indica* L.) Cv. Totapuri was carried out at the "A" block of mango orchard at UAS, GKVK Campus, Bangalore, Karnataka, India. Complete Randomized Design was used with three

replications. Cv. Totapuri trees were sprayed with CaCl<sub>2</sub> at 30 days and 15 days before harvest. Data on number of days taken for ripening of fruits and the shelf-life of fruits were recorded. T<sub>1</sub>: Control (no spray), T<sub>2</sub>: 0.50% spray of calcium chloride at 30 days before harvest, T<sub>3</sub>: 1.00% spray of calcium chloride at 30 days before harvest, T<sub>4</sub>: 1.50% spray of calcium chloride at 30 days before harvest, T<sub>5</sub>: 0.50% spray of calcium chloride at 15 days before harvest, T<sub>6</sub>: 1.00% spray of calcium chloride at 15 days before harvest, T<sub>7</sub>: 1.50% spray of calcium chloride at 15 days before harvest

## RESULTS AND DISCUSSION

**Number of days taken for ripening of fruits:** The data presented in Table 1 showed that significantly delay of

**Table 1:** Effect of CaCl<sub>2</sub> spray on number of days taken for ripening and shelf-life of mango fruits in Cv. Totapuri

| Treatments  | No. of days taken for ripening of fruits | Shelf-life of fruits (days) |
|---|--|-----------------------------|
| T <sub>1</sub> : Control                                | 16.22                                    | 21.44                       |
| T <sub>2</sub> : CaCl <sub>2</sub> 0.50% spray at 30DBH | 18.44                                    | 24.11                       |
| T <sub>3</sub> :CaCl <sub>2</sub> 1.00% spray at 30DBH  | 19.11                                    | 25.22                       |
| T <sub>4</sub> : CaCl <sub>2</sub> 1.50% spray at 30DBH | 19.89                                    | 25.89                       |
| T <sub>5</sub> : CaCl <sub>2</sub> 0.50% spray at 15DBH | 16.11                                    | 22.33                       |
| T <sub>6</sub> : CaCl <sub>2</sub> 1.00% spray at 15DBH | 17.22                                    | 23.22                       |
| T <sub>7</sub> : CaCl <sub>2</sub> 1.50% spray at 15DBH | 19.11                                    | 23.89                       |
| <b>F test</b>   | **                                       | **                          |
| <b>SEm±</b>   | 0.29                                     | 0.30                        |
| <b>C.D. at 5%</b>                                       | 0.63                                     | 0.63                        |
| <b>C.V. (%)</b>   | 1.97                                     | 1.53                        |

DBH: Days before harvest ; \*\* : Significant at 1%

ripening of fruit was found in Cv. Totapuri when trees were sprayed with 1.50% CaCl<sub>2</sub> at 30 days before harvest (19.89 days). The delay could be attributed to the fact that pre-harvest applications are more useful early in the development of fruits rather than when applied late. Similar observations were noticed by Penter and Stassen, 2000. Higher fruit calcium levels in fruits leads to the reduction of respiration and ethylene production rates thus delay the ripening of fruits. These findings are in agreement with the reports of Hewajulige et al. (2003) and Gill et al. (2005).

**Shelf-life of fruits:** Results regarding the shelf-life of fruits are presented in Table 1. Shelf-life of fruits was significantly long in Cv. Totapuri when trees were sprayed with 1.50% CaCl<sub>2</sub> at 30 days before harvest

(25.89). The extension of shelf-life was more important when fruits were sprayed at 30 days before harvest. The reason of extension of shelf-life by CaCl<sub>2</sub> sprays might be due to the fact that where fruits are harvested at the correct maturity; calcium plays a number of roles such as an increase in fruit firmness relative to control. This leads to benefits like a slower ripening and increased shelf-life. The present findings are in close conformity with those of Gore (2005).

## CONCLUSION

The data from that study showed that the ripening and shelf-life of Totapuli were improved when mango were sprayed with CaCl<sub>2</sub> 1.50% at 30 days before spraying.

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