

**Title** Effect of different doses of irradiation on the shelf life and quality of mango cv Totapari stored at low temperature

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### **Abstract**

Various technologies like postharvest chemical dip and low temperature storage have been standardized for improving the postharvest shelflife and to preserve the quality of mango fruits. However, the residues of these chemical on the mango fruits make its increasingly unacceptable for the consumers. Further, mangos can be stored up to 20 days in cold storage (at a temperature of 12.5 °C) under Indian conditions. However, the problem of spoilage due to rotting is common in such storage structures causing serious obstacle in the export of the mango fruit from India, Hence, Totapari variety of mango fruits were irradiated at 0.4, 0.6, 0.8 and 1.0 Kgy and stored at 12.5 °C. Various physicochemicals and quality parameters were analyzed at regular intervals. Irradiation of mango fruits cv Totapari at 0.6 kGy has significantly reduced the physiological loss in weight, delayed the ripening and improved the shelflife up to 38 days when compared to shelf life of 30 days in non-irradiated fruits. Significantly lower spoilage was recorded when the fruits were irradiated with 0.6 kGy. Higher doses of irradiation (0.8 and 1.0 kGy) were not effective in further significantly reducing the rotting percentage when compared to fruits irradiated at 0.6 kGy. Further, Irradiation of the fruits at higher doses of 1.0 KGy caused damage to the skin surface of the fruit with substantial loss in the fruit quality. However, irradiation of the fruits at 0.6 kGy has preserved the various quality parameters like total soluble solids, sugars and ascorbic acid content and organoleptic score even up to the end of shelf life of 38 days. The study concluded that irradiation of Totapari mango fruits at 0.6 KGy and storing at 12.5 °C not only improves the shelflife up to 38 days but also preserves the quality of the fruit.