

**Title** Synergistic effects of MAP and irradiation on storability of achras sapota cv Kalipati at low temperatures

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### **Abstract**

A set of two experiments on the effect of modified atmospheric packaging (MAP) and combination of MAP and irradiation on storability, shelf life at low temperature, of sapota cv Kalipatti was conducted at Fruit Research Station, Sangareddy. In the first experiment, sapota fruit cv. Kalipatti were packed in polypropylene bags of 100 and 150 gauge without and with perforation (0.1 %) and stored at 15°C for 15 or 30 days and transferred to room temperature. Various physico-chemical parameters like PLW, spoilage, firmness, TSS, sugar, acidity and TSS/acid ratio were estimated at an interval of 3 days after transferred to room temperature. Fruits packed in polypropylene bags of 100 gauge with 0.1 % perforation and stored for 15°C for 15 days recorded significantly lower PLW, higher firmness, lowest spoilage, higher TSS, sugar and TSS/Acid ratio even up to 6<sup>th</sup> day after transferred to room temperature. The maximum total storability of 21 days (15 days at ISoC and 6 days at room temperature) was recorded in fruits packed in 100 gauge polypropylene with 0.1 % perforation. Further to increase the total shelf life, the fruit after packaging in polypropylene bags of 100 gauge with 0.1 % perforation of experiment-1 were irradiated at different doses of 0.2, 0.4, 0.6, 0.8 kGy and stored at 15°C for 20 days in 2<sup>nd</sup> experiment. The fruits packed in MAP and irradiated with 0.2 kGy recorded significantly lower PLW, higher firmness and lower sugar when compared to other irradiation doses and control. Higher irradiation dose of above 0.6 kGy has damaged the fruits. The fruits packed in polypropylene 100 gauge with 0.1% perforation and irradiated at 0.2 kGy recorded significantly higher shelflife of 6 days after transferred to room temperature, increase the total storability to 26 days (20 days at low temperature and 6 days after room temperature).