

**Title** Response of guava fruit (*Psidium guajava* L. cv. Lucknow-49) to controlled atmosphere storage

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### **Abstract**

Guava being a potential fruit crop of subtropical regions of India, occupies a distinct position among other fruits. Its fruit is extolled for delicious taste and high nutritional value. Certain postharvest constraints like short shelf life, chilling sensitivity and susceptibility to diseases limit its long duration storage and transportation. The need of postharvest management of guava fruit in hi-tech way like controlled atmosphere (CA) storage was realized to extend its period of availability in market and also to harness the export opportunities. Therefore, the present investigation was undertaken to study the response of a commercial guava cultivar, 'Lucknow-49', to CA storage. Freshly harvested mature green fruits were stored in *Pusa Controlled Atmosphere Storage system* using two static CA combinations (5% O<sub>2</sub> and 2.5% CO<sub>2</sub>, and 10% O<sub>2</sub> and 5% CO<sub>2</sub>) and another sequential CA combination with gradual reduction in O<sub>2</sub> from 10% to 0.3% and increasing CO<sub>2</sub> from 10% up to 25% over the storage period of one month at 8°C with 85-90% R.H. Controlled atmosphere storage reduced the rate of respiration and ethylene evolution to variable extent and the fruit could be stored well in unripe condition for one month, while control fruit showed severe chilling injury (CI) symptoms, weight loss and spoilage. CA storage reduced the weight loss, maintained firmness and colour and alleviated CI. The post CA storage ripening carried out under controlled (20°C and 75% RH) and ambient (28-30°C and 40-50% RH) conditions completed within 5 and 3 days, respectively, and fruits in former case were superior in nutritional and sensory quality to later.