

Effect of storage and packing materials on shelf life of bottle gourd (*Lagenaria siceraria* L.) cv. PUSA NAVEEN

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ABSTRACT

An experiment was conducted on "Effect of storage and packaging materials on shelf life of bottle gourd (*Lagenaria siceraria* L.) cv. PUSA NAVEEN" during May 2007 and found that there was an increase followed by subsequent decrease in TSS content with corresponding decrease in acidity upon prolonged storage of bottle gourd fruits under all the storage conditions irrespective of packaging material treatments. Physiological loss in weight was increased with the subsequent increase in storage in all packaging material treatments and storage conditions. The per cent of physiological loss in weight, TSS and acidity was increased at slower rate and shelf life was recorded maximum in ZECC storage condition and also in polyethylene bag (100 gauge and 2% vent) + CFB box packing.

Key words : Bottle gourd, Packaging materials, Shelf life, Storage, ZECC

Cucurbitaceous family is a large group of vegetable crops, cultivated extensively in tropical and subtropical parts of the world. This group consists of wide range of the vegetables viz., cucumbers, melons, pumpkin, squashes and gourds. Among gourds, bottle gourd (*Lagenaria siceraria* L.) commonly known as *lauki*, *kaddu*, *ghiya* or *doodhi* is grown extensively in India. Bottle gourd is cultivated as a field crop in *Kharif* and summer seasons throughout the country. However, it is grown throughout the year particularly in areas where winters are mild as in different regions of Gujarat. The post-harvest losses in bottle gourd occur due to lack of proper packaging materials, improper handling during long distance transport and microbial spoilage. Extension of shelf life can be possible by checking the rate of respiration, transpiration and microbial infection. Though packaging forms the last link in the chain of production, storage, marketing and distribution, it still plays an important role in delivering the contents safe for the "farm gate to the consumer plate." However, no systematic studies have so far been reported on the existing shelf life of bottle gourd. There is paucity of information on storage structure for storage of bottle gourd to maintain quality during storage.

MATERIALS AND METHODS

An experiment was conducted at the Department of Horticulture, N.M. College of Agriculture, Navsari Agricultural University, Navsari (Gujarat) during the month of May 2007. The treatments comprised of three

different storage conditions viz., Zero energy cool chamber (ZECC) at 22.36-24.73°C and 92.66-97.36% RH, room temperature (26.83-34.03°C and 50.33-73.66% RH) and basement storage (24.62-32.17°C and 52.11-75.33% RH) with packaging materials viz., Polyethylene bag (100 gauge and 2% vent), CFB box, News paper, Polyethylene (100 gauge and 2% vent) + CFB box, News paper + CFB box and Control (without packaging). The experiment was laid out in a Completely Randomized Design with Factorial concept (FCRD) along with three repetition. The physico-chemical observations are recorded at an every two days intervals upto 14th day.

RESULTS AND DISCUSSION

The results obtained from the present investigation are presented below :

Effect of storage conditions :

In the present investigation, bottle gourds were stored at three different storage conditions viz., at RT (26.83-34.03°C and 50.33-73.66% RH), BS (24.62-32.17°C and 52.11-75.33% RH) and ZECC (22.36-24.73°C and 92.66-97.36% RH). The loss in quality of bottle gourd fruit increased with the advancement of storage period under all the storage conditions. The physiological loss in weight of bottle gourd fruits was constantly less in ZECC storage condition as against constantly high at room temperature and basement storage (Table 1). It was noted that the physiological weight loss of bottle gourd fruits during initial storage period was constantly low in ZECC storage as