

## **BIO-CHEMICAL PARAMETERS OF BER (*Zizyphus mauritiana* Lamk.) cv. UMRAN AS INFLUENCED BY DIFFERENT PACKAGES AND STORAGE CONDITIONS**

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### **ABSTRACT**

The experiment was conducted to find out the influence of packages and storage conditions on bio-chemical parameters of ber (*Zizyphus mauritiana* Lamk.) fruits after transportation. Among the different packages, corrugated paper box with mesh recorded lower total soluble solids and non reducing sugars with higher titrable acidity, ascorbic acid, total sugars and reducing sugars as compared to wooden boxes. With respect to storage conditions, lower TSS and non reducing sugars with higher titrable acidity, ascorbic acid, total sugars and reducing sugars were observed in zero energy cool chamber.

**Key words** : Ber, Packages, Storage conditions, Bio-chemical parameters

**B**er (*Zizyphus mauritiana* Lamk.) is one of the most ancient fruits of India. It is also known as Jujube. It is called king of arid zone fruits. It is a hardy crop and can be grown in marginal lands in arid and semi-arid zones. The fruits are rich source of vitamin C, A and B complex and minerals like phosphorous and Calcium. The increased production by evolving new agro techniques will not serve the purpose unless it is supplemented by efforts to minimize the post harvest losses. The shelf life of ber fruits can be extended and losses can be reduced by proper post harvest handling and storage which influence the post harvest behaviour in terms of physical, physiological and bio-chemical changes. In this direction very little attempt has been made for this crop. The present investigation was undertaken to study the influence of packages and storage conditions in storage on bio chemical parameters of ber fruits after transportation.

### **MATERIALS AND METHODS**

This experiment was conducted at the College of Agriculture, Bijapur during 1995. For this investigation well developed, matured and uniform sized fruits were harvested. After removal of field heat, five kg of fruits were packed in various packages like gunny bag (P<sub>1</sub>), woven basket (P<sub>2</sub>), corrugated paper box (P<sub>3</sub>), corrugated paper box with mesh (P<sub>4</sub>) and wooden box (P<sub>5</sub>) using untreated news paper cuttings as cushioning material.

After packing, fruits were transported covering 250 km distance by road for seven hours in the same night. The fruits after transportation were stored in different conditions like room temperature (S<sub>1</sub>), modified atmosphere (S<sub>2</sub>) and zero energy cool chamber (S<sub>3</sub>) (ZECC). In modified atmosphere ventilated polythene covers were used for covering the packed fruits. The total soluble solid (TSS) was determined by using hand refractometer and reducing sugars was determined by Nelson Somogy's method. The acidity, ascorbic acid and sugars were estimated according to the methods outlined by Anonymous (1970). These parameters were recorded at 3, 6, 9 and 12 days after storage (DAS).

### **RESULTS AND DISCUSSION**

Fruits packed in corrugated paper box with mesh showed significantly lower total soluble solids (16.13, 15.23, 14.31 and 13.32% at 3, 6, 9 and 12 DAS, respectively) compared to wooden box (Table 1). The maximum total soluble solids in wooden boxes may be attributed to higher physiological loss in weight, metabolic activities and partly by hydrolysis of starch. Similar results were also obtained by Jain and Chauhan (1993) in Kinnow mandarin fruits. Fruits stored in ZECC had lowest total soluble solids (14.80 and 13.79% at 9 and 12 DAS, respectively) compared to room temperature. This was mainly attributed to the higher temperature in room temperature condition. As the temperature increases the TSS content of the fruit also increases due to rapid loss of moisture and higher bio-chemical activities. The