

RESEARCH PAPER:

Physiological storage characteristics of some improved varieties of banana *Musa paradisiaca* L.

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SUMMARY

Three banana varieties viz., Williams, Zeling and Grand Nain were packed in polyethylene bags with ventilation and stored at room temperature ($32 \pm 2^\circ\text{C}$), cold storage ($20 \pm 2^\circ\text{C}$) and deep freezer ($4 \pm 2^\circ\text{C}$). Changes in storage characteristics were recorded at 3 days intervals till the fruit's condition turned to rejectable stage. There was increase in PLW, PLW/IW ratio and pulp/peel ratio with increase in storage period.

Key words :
PLW, PLW/IW
ratio and pulp/peel
ratio, Banana

Formerly, the word banana (*Musa* sp.) was applied to Nendran banana of Kerala which was however called Plantain by westerners. It belongs to the family "Musaceae" and botanically named "*Musa paradisiaca* L.". The word banana was applied to all table varieties. Bananas are cultivated in over 100 countries. The fruits are normally dispatched to the market immediately after harvesting and these ripen on their way to the destination. The field temperature reaches upto 45°C in most part of India in summer as a result burn injury occurs in fruits. On the other hand, particularly during winter season, the atmospheric temperature drops 10°C in the Northern hilly and plain area. The temperature attained by the fruits during transit could vary from 10°C to 37°C , with the result there are variations in quality of ripen banana (Ranganna, 1992). Temperature plays important role in ripening process of banana and the development of optimum quality. To get banana fruit with good consumer acceptability and longer shelf-life, it is imperative to determine storage characteristic of banana at different temperatures.

MATERIALS AND METHODS

The available banana cultivars viz., Williams, Zeling and Grand Nain were selected for the study. Bunches of these three cultivars of uniform size were harvested from keptive farm of Jain Foods Ltd. Jalgaon about 105 days after fruits set. Each fruit without any blemishes were cut from the bunches. Three lots were made from each variety. Banana fruits were packed in polyethylene bags (22.5 mm x 15mm

and 40 micron thickness) with ventilation, having three samples of each variety in one bag.

One lot from each variety was kept at room temperature ($32 \pm 2^\circ\text{C}$), cold storage ($20 \pm 2^\circ\text{C}$) and deep freezer ($4 \pm 2^\circ\text{C}$). Changes in physiological characteristics like physiological loss in weight (PLW), PLW/initial weight ratio and pulp/peel ratio were recorded at 3 days interval.

Observations were recorded till the rejectable condition of fruit. One sample from each variety was taken out for analysis, therefore, total 9 samples viz., 3 from room temperature, 3 from cold storage and 3 from deep freezer were taken out.

The relationship between dependent variable (PLW, PLW/IW ratio and pulp/peel ratio) and independent variable (storage days) is given in Table 1.

RESULTS AND DISCUSSION

The results obtained from the present investigation are summarized below :

Physiological loss in weight (PLW):

Fig. 1 shows a comparison of changes in PLW of banana of various varieties kept under various temperatures against storage days.

Physiological loss in weight of banana fruit increased with increase in storage duration in all varieties. This may be due to transpiration and respiration losses. It is in agreement with Carvalho *et al.* (1990) and Nagaraju and Reddy (1995). At 32°C , maximum reduction in weight loss occurred in Grand nain (14.5 g) followed

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