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Effect Of Pre-Harvest Spray Of Growth Regulators On Ambient Storage Of Ber

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ABSTRACT

Organoleptic rating was the highest with 10 ppm TIBA and 400 ppm ethephon treatment after 10 days of room storage. Fruits stored in polythene bags gave better rating than those kept in paper bags. TIBA 10 ppm in paper bags and TIBA 25 ppm in poly bags markedly lowered PLW of the fruits. Minimum spoilage was noted in 300-500 ppm ethephon in paper bags and SADH 1000 ppm and morphaction 25 ppm in poly bags. Paper bags exhibited higher PLW and spoilage losses. Higher TSS with corresponding lower acidity after storage was noted in ethephon 400 and 500 ppm. TIBA at 25 and 50 ppm in poly bags retained the maximum vitamin C content after storage. Ethephon 500 ppm had the minimum total phenolics. Higher reduction in starch percentage was noted in the fruits treated with ethephon 500 ppm and TIBA 50 ppm. Total sugars were noted highest in ethephon 500 and 400 ppm. PME activity was recorded minimum with 300 and 400 ppm ethephon. Fruits kept in paper bags retained higher TSS and total sugars and lower acidity, starch content and PME activity than the polythene bags.

Key words : Ber, Growth regulators, Ambient storage, Pre-harvest.

INTRODUCTION

The ber (*Zizyphus mauritiana* Lamk.) is an important fruit of North India. Its cultivation has received a great impetus as a commercial crop in Punjab, Haryana and Rajasthan because of its potential for high yields and excellent economic return to the growers. The peak season for harvesting the ber in Punjab is end-March to mid-April. The fruit of late cultivar Umran can be made to ripen earlier and uniformly with pre-harvest sprayings of growth regulators at colour-break stage thereby avoiding the bothersome operation of picking in 4-5 lots (Singh *et al* 1981). To obtain higher income from ber, it is necessary to formulate a new cropping pattern with the use of growth regulators. Thus, there is need to extend the harvesting period of ber and to make available quality fruit through improved post-harvest means for considerable length of time.

MATERIALS AND METHODS

The investigations on the effect of pre-harvest spray of growth regulators at ambient storage of ber were conducted in the Department of Horticulture, PAU, Ludhiana. The fruits of full grown Umran trees were sprayed with pre-harvest application of ethephon 300, 400, 500 ppm; succinic acid 2,2-dimethylhydrazide (SADH) 1000, 2000, 3000 ppm; morphactin and 2,3,5-triiodobenzoic acid (TIBA) 10, 25, 50 ppm each during first week of March. The fruits were harvested at optimum maturity (mid-March) and stored at room temperature (22-28°C). The fruits from all the treatments were packed in paper and 100 gauge thick polythene bags. Both the bags were punched once at each 2.5 to 3 cm square area with 30 perforations in order to facilitate gaseous exchange. Two kg fruits were packed in each bag which were sealed with Stapler and placed in ventilated wooden boxes. Samples were taken out after 10 days for recording physico-chemical characteristics. The observations on physical changes like organoleptic rating, physiological loss in weight and spoilage were recorded. The biochemical changes like total soluble solids, acidity, vitamin C, total phenolics, starch and total sugars were estimated as per standard procedures of AOAC (1980). For the estimation of pectin methyl esterase, the method of Dingle *et al* (1953) was followed.

RESULTS AND DISCUSSION

A. Physical changes

The texture, taste and flavour of the pre-harvest growth regulators treated ber fruits were significantly better than the untreated fruits after 10 days of storage. The highest rating was noted with TIBA 10, 25 ppm and ethephon 400, 500 ppm in polythene bags. Among the paper bag treatments, the fruits retained the highest rating in TIBA 10 ppm. SADH 1000 and 2000 ppm also retained good rating in paper bags. The palatability rating of fruits stored in polythene bags was significantly better than those kept in paper bags. The results of present studies are corroborated by the findings of Jawanda *et al* (1980) and Kore and Sharma (1990) in ber fruits.

The different growth regulator treatments showed little variation in PLW. The increase in weight loss in polythene