Effect Of Post – Harvest Application Of Cycocel, Gibberellic Acid And Calcium Chloride On Storage Behaviour Of "Red Delicious" Apple During Storage

R.K. Singh and Arshad Ahmad Pal*

Department of Horticulture, C.C.R.(P.G.) College, Muzaffarnagar – 251001 (U.P.) INDIA

ABSTRACT

The fruits of Red Delicious apple were stored in cold storage at 1-4^{0}C temperature and 90-95% relative humidity, after treating them with cycocel (CCC) (2500 and 3500pm), Gibberellic Acid (GA$_3$) (120 and 240 ppm), Calcium Chloride (CaCl$_2$) (4 and 6%) and control (treated with distilled water). The results indicated that the treatment with GA$_3$ (120 ppm) was found effective in reducing physiological loss in weight, reducing spoilage, increasing fruit firmness and in maintaining highest organoleptic rating.

Key words : Apple, storage, GA$_3$, CaCl$_2$, CCC

INTRODUCTION

The pome fruit are most important in the temperate regions of the world and apple if choicest of all. It is the premier table fruit of the world. The post harvest losses in case of fruits are very high which stands in the way of establishing fruit industry on commercial basis. In order to give impetus to fruit production the storage aspect need special attention. Storage of fruits aims at to protect the perishables for longer period. Improper storage cause physiological loses including change in respiration, transpiration, pigments and flavour. These losses can be minimized by proper storage and by post-harvest treatment with some chemicals. The post-harvest treatment of Anna and Dorset Golden apples with 4% CaCl$_2$ solution has been reported to decrease the weight loss and spoilage (Hussein – M.A. *et al.* 2001). Highest firmness was reported in apple fruits treated with GA$_3$ (50ppm) (Hussein – M.A. *et al.* 2003). Therefore the present studies were undertaken to find out the effect of post – harvest application of Cycocel, Gibberellic Acid and Calcium Chloride on the physical characteristics of Red Delicious apple.

MATERIALS AND METHODS

The present investigation was conducted in the Department of Horticulture C.C.R. (P.G.) College, Muzaffarnagar (U.P.) during the year 2004-05. The fruits for the study were procured from Kashmir valley. The fruits were randomly picked from all sides including peripheral areas of the tree by hand.

The treatments, namely Cycocel (500 and 3500 ppm), Gibberelic Acid (120 and 240 ppm), Calcium Chloride 4

and 6%) and control (treated with distilled water) were applied (the dip for 10 minutes) to the fruits before packing in cardboard boxes. The fruits were placed in shade for air-drying the excess water from their surface and were then packed in cardboard boxes. Five fruits were packed in each box. Each treatment comprising of three boxes having 15 fruits. The observations were recorded at 30 days interval.

The percentage of fruits that had been spoiled was calculated on the basis of number of fruits used in each treatment. The physiological loss in weight was calculated by subtracting the weight loss of fruit at periodical intervals from the initial weight. The fruits were used for organoleptic test by a panel of 3 judges. The external appearance of the fruit Colour, taste, flavour and texture were the characters taken into the consideration by the panel. The firmness of the fruit was measured with the help of a "fruit tester" penetrometer after removing about one square cm. of peel.

RESULTS AND DISCUSSION

Physiological loss in weight :

The data in table-1 reveals that the fruits treated with GA$_3$ (120 ppm) recorded the lowest physiological loss in weight (1.14%) and (2.14%) at 30 and 60 days of storage respectively. Whereas the lowest physiological loss in weight (3.12%) was recorded after 90 days of storage in the fruits treated with CaCl$_2$ (4%). The highest physiological loss in weight (2.13%), (3.07%) and (4.08%) were recorded in control at 30, 60 and 90 days of storage respectively. Whereas, all the other treatments proved better than the

---

***Author for correspondence**