

EFFECT OF POST HARVEST TREATMENTS ON THE QUALITY AND SHELF LIFE OF NAGPUR MANDARIN

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ABSTRACT

An experiment was carried out on freshly harvested *mrig* bahar fruits of Nagpur mandarin during the period from 20th February 2006 to 1st April 2006 in the laboratory of Horticulture Section, College of Agriculture, Nagpur. Post harvest treatment of Nagpur mandarin fruits with NaCl 1% + sesame oil 2% was found to be effective for retention of juice content and ascorbic acid content of fruits, relatively least changes in TSS, acidity and total sugar content of fruits and also to increase the shelf life of fruits.

Key words : Mandarin, Self life, Oil emulsion, Post harvest treatment.

Citrus is an important fruit crop in the world. In India, it is ranking third after banana and mango. India producing 47.5 lakh tonnes of fruits from 2.64 lakh ha area contributing 4.8 per cent of total world production. (Anon., 2004). Mandarin is one of the most important fruit crops among citrus species grown in Maharashtra with a production of 8,81,878 tonnes from an area of 1,50,786 ha (Anon, 2004).

After harvesting of citrus fruit nearly 30-40 percent post harvest losses occur on account of various reasons such as improper harvesting, lack of knowledge of maturity standards for harvesting, lack of proper storage facilities, scarcity of skilled labour, improper handling during storage and transport etc. Similarly, attack of pest and diseases is also an important cause of post harvest losses of fruits (Bangarusamy, 2001).

At room temperature citrus fruits can not be stored for longer period as fresh appearance of fruit get lost. In long storage fruits become shrivelled and spoiled by decaying organisms as well as chemical changes and physiological loss in weight of fruits which affects net return from the crop. Keeping in view the above facts, present study was undertaken to store the citrus fruits under ambient condition and to maintain their quality with the use of different chemicals and oil emulsion, so that the fruit will retain their freshness for longer period.

MATERIALS AND METHODS

An experiment was carried out on freshly harvested

mrig bahar fruits of Nagpur mandarin during the period from 20th February 2006 to 1st April 2006 in the laboratory of Horticulture Section, College of Agriculture, Nagpur. Mature, uniform sized, greenish yellow and healthy fruits were harvested from the orchard. Twenty five fruits were selected for each treatments. The selected fruit were cleaned, air dried and then treated with different chemicals and oil emulsion as per the treatment. Different treatments comprise of NaCl 1% (T₁), GA₃ 500 ppm (T₂), Sesame oil 2% (T₃), Bavistin 1000 ppm (T₄), 2,4-D 500 ppm (T₅), NaCl 1% + GA₃ 500 ppm (T₆), NaCl 1% + Sesame oil 2% (T₇), NaCl 1% + 2,4-D 500 ppm (T₈), GA₃ 500 ppm + Bavistin 1000 ppm (T₉), GA₃ 500 ppm + Sesame oil 2% (T₁₀), Bavistin 1000 ppm + Sesame oil 2% (T₁₁) and Control (water dip) (T₁₂).

The experiment was laid out in completely Randomized Block Design with three replications. Fruits were dipped for five minutes in respective solutions, air dried and kept in single layer in conventional wooden boxes of size 33 cm x 33 cm x 50 cm length, breadth and height, respectively and covered with wooden lids. Paddy straw and news paper were used as cushioning materials to line inside the wooden boxes. These boxes were kept in the laboratory at room temperature (18.78°C-35.72°C) and relative humidity (22.69% to 44.32%) for forty days period.

Two fruits were used for chemical analysis at each interval of 8 days. The juice percentage was calculated on weight basis. TSS was determined by using hand refractometer and recorded in percentage. Acidity was calculated by using method of AOAC (1985). Ascorbic acid was determined by using starch indicator (Ranganna,