

Effect of various pre and post harvest treatment as a ripening technique for oranges

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SUMMARY : Fruits of oranges free from any external and internal disorders harvested at physiological green mature stage were utilized for studying its ripening behaviour .Initially fruits were treated with Neem oil (1%) in order to break any pest attack and the treatments were given as foliar spray. Freshly harvested fruits were divided into different lots .The first lot of fruit was treated with ethylene gas as they were exposed to ethylene gas (150 ppm) for 24 h in ripening chamber. Similarly another lot was treated with various concentrations of ethephon (250, 500, 750, 1000 ppm) primarily in aqueous solution each for 5 min. Immediately after above referred treatments, the treated fruits were packed in sanitized plastic crates and stored in ripening chamber in which temperature and RH were maintained at 20-25°C and 85-95 per cent, respectively. Treatment with ethylene gas (150 ppm) or ethephon (750 ppm) resulted in adequate ripening of fruits after 28 days with most acceptable quality attributes such as flavour , uniform colour, acceptable firmness and extended shelf-life. On the other hand the untreated lots of fruits were poor in quality attributes. It was observed that timely adopting ripening techniques with ethylene gas or ethephon are better in reducing various postharvest decay and losses and strengthening the economy of farmers all over oranges producing states of the countries.

Key Words : Oranges, Pre-harvest treatments, Ripening techniques, . Ethylene gas, Ethephon, Overall quality, Shelf-life

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Oranges are one of the most important fruit crop of tropical and subtropical India and world. Punjab ,UP, Maharashtra Tamil Nadu, Andhra Pradesh , and Gujrat are major states of India where oranges are produced in plenty. In India oranges are produced in an area of 515 thousand hectares with an annual production of 19.21 million tones (Anonymous, 2010). In India, oranges cultivation has resulted in better economy to growers as a result of which both acre and production has increased from the last three four years. At present to further enhance the production and quality of oranges in India an appropriate ripening techniques is urgently required to eliminate the traditional ripening method in which ripening is done through calcium carbide and the use of this chemical is prohibited due to its carcinogenic nature (PFA,

2003). Therefore, the present Investigation was done to study the ripening techniques by using ethephon and ethylene as an alternate measure for improving the ripening of oranges fruits, so that the quality fruits with uniform ripening are made available to consumers throughout the years .

EXPERIMENTAL METHODS

The fruits of oranges were harvested at slightly green mature stage and most appropriately when the stiffness on fruit surface starts disappearing.. The fruits selected were free from any bruising and abrasion damage and were kept in easy free manner so that the abrasion can be avoided. As far as treatment is concerned , in the first lot 50 kg of fruits were subjected to ethylene gas (150 ppm) using ethylene gas generator (9002, Cavanta , California ,USA) and the Temp. and RH inside the ripening chamber were maintained at 15°C and 85-90 per cent RH. Similarly in the the second treatment lot of 40 kg was directly placed in aqueous solutions of ethephon

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