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Effect of different treatments and packaging materials on biochemical changes during storage of kagzi lime

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The experiment was conducted at Post Harvest Technology Scheme, Dr. Panjabrao Deshmukh Krishi Vidyapeeth, Akola. The experiment deals with the storage of kagzi lime in perforated polyethylene and non-perforated polypropylene bags of 100, 200 and 300 gauges and with different treatments *viz*., chemicals and wax emulsion. The fruits stored in 200 gauged perforated polypropylene bags recorded minimum pH, TSS, brix/acid ratio and maximum content of acidity and ascorbic acid at the end of 70 days in cold storage condition. Among different chemicals and wax emulsion, waxol 6%+ captan 0.1% recorded minimum pH, TSS, brix/acid ratio and maximum content of acidity and ascorbic acid at the end of 30 days in case of CS and 20 days in cold storage. However, ,it revealed that, fruits packed in 200 gauged perforated polypropylene and polyethylene bags exhibited shelf life upto 70 by slowed down biochemical changes.

Key words : Total soluble solids, Acidity, Ascorbic acid, Wax emulsion and spoilage, Kagziline, Storage.

INTRODUCTION

Citrus fruits are among the most important fruit crop in the sub tropical regions. In India, the commercially important species are mandarin (*Citrus reticulata* Blanco), Sweet orange [*Citrus Sinesis* (L) Osb] and lemon and lime (*Citrus limon* Burm. f. and *Citrus aurantifolia* Swingle). Locally acid lime is termed as "Kagzi Nimboo" (*Citrus aurantifolia* Swingle). It is one of the most important commercial fruit crops of citrus industry. In India total area under kagzi lime occupies about 1.68 lakh ha with production of 15.42 lakh tonnes contributing 3.1 per cent of total fruit production. In Maharashtra total area under kagzi lime occupies about 0.34 lakh ha with production of 1.77 lakh tonnes (Anonymous, 2005). Thus, it is indicated that Kagzi lime is one of the economically important fruit crop of Vidarbha region, next to mandarin. The fruits become ready for harvesting during June to September and November December in Vidarbha region. But due to glut in the market, farmers fetch less price. In order to have good return and to avoid market glut of Kagzi lime fruits, it becomes essential to store the fruits for a considerable period to prolong the marketing period that will ultimately insure the availability of the fruits to the consumers. The present investigation was undertaken to find out solution to prolong post harvest life of Kagzi lime fruits by storing them in perforated and non perforated polyethylene; polypropylene bags and treated with some chemicals and wax emulsion. The present study also deals with experimentation for enhancement of shelf life of kagzi lime by using various treatments.

MATERIALS AND METHODS

The experiment was conducted at Post Harvest Technology Scheme, Dr.PDKV Akola. The experiment storage in cold storage consisting of 22 treatments. The fruits of kagzi lime were obtained in the month of January 2004 from the farmers' field. Matured fruits of uniform green colour, uniform size, and free from blemishes were used for the experiment. Fruits affected with sunburn, bruised, oversized or damaged were discarded. The fruits after washing in fresh tap water were kept for storage in perforated and non-perforated polyethylene and polypropylene bags of 100, 200, 300 gauges. The fruits stored openly treated with different chemicals and wax emulsion *viz*. Nacl (2 %), $KMnO_4$ (100 ppm), carbendazim (500 ppm), Turmeric leaf oil (1%), castor oil (1%), waxol (6 %) + captan (0.1%), waxol (6 %) + NaCl (2%), GA_3 (500 ppm) and coconut water. After dipping in different chemicals and wax emulsions, the fruits were kept in open for storage in cold storage. The fruits were kept as control without giving any treatment in both the storage conditions. The samples from each treatment were drawn for regular observation at 10 days interval.

The experiment consisting of 22 treatments replicated thrice was laid in analysis of variance technique -one way

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