



## Effect of HDPE packaging with perforation and chemicals on ambient storage of kinnow

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**Abstract :** Fruits of kinnow mandarin matures in the winter months under Punjab conditions, during that period there is low demand of fresh fruit in the market due to low temperature. So, there is need to enhance the shelf life of Kinnow fruits for the profitable marketing during the early summer months. Keeping this in view a study was conducted to enhance the post harvest life of Kinnow at ambient storage. Freshly harvested Kinnow fruits were washed and treated with sodium carbonate (2 and 3 %), boric acid (2 and 3 %) and packed in HDPE bags with perforation before packaging in CFB boxes. Sealed CFB boxes of Kinnow were placed at ambient conditions for 60 days and fruits were analysed for various physico-chemical characteristics after 15, 30, 45 and 60 days of storage. Results revealed that minimum rotting and maximum palatability rating were registered in boric acid @ 3 per cent + HDPE packaging with perforation during the entire storage period. TSS and PLW were found maximum in control fruits. Observations revealed that storage rots can be reduced by treating the Kinnow fruits with boric acid @ 3 per cent+HDPE packaging with perforation and fruit can be safely stored upto 45 days at ambient conditions with acceptable quality. However, after 60 days of storage a noticeable deterioration in fruit quality was recorded.

**Key Words :** Kinnow, Storage, Boric acid, Sodium carbonate, Packaging

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### INTRODUCTION

Kinnow occupies the prime position amongst the citrus fruits grown in Punjab. It is precocious, prolific bearer and has excellent fruit quality with high juice content. Kinnow fruits mature from mid January to mid February. There is often a glut like situation in the market at its peak harvest time. This results in low returns to the growers. There is a need to enhance the shelf-life of Kinnow fruit for its extended marketing during April and May. The incidence of microbial fruit rots of fungal and bacterial origin is a common problem in storage, which markedly deteriorate the keeping quality of fruits. Earlier, attempts have been made to keep the surplus fruit in cold storage for use during summer months (Vij, 1981). Most of the cold storages operate at near zero temperature, the Kinnow fruit may get pathological rotting during storage. The incidence of microbial fruit rots of fungal and bacterial origin is a common

problem in storage, which markedly deteriorate the keeping quality of fruits. The species of *Penicillium*, *Alternaria*, *Aspergillus*, *Botrydiploidia* and *Geotrichum* etc. are particularly responsible for causing heavy losses (Kaur, 1999). The main factor governing storage life of citrus fruits are weight loss and decay. Individual seal packaging could significantly reduce weight loss and shrivelling, but the potential decay problem of sealed fruits need to be solved through perforation/ chemicals.

### MATERIALS AND METHODS

The Kinnow fruits harvested in the month of January. Freshly harvested kinnow fruits were disinfected by washing in chlorinated water (100 ppm) and dried in air. After drying, following pre-storage treatments were given.

T<sub>1</sub> = Sodium carbonate(2%)+ HDPE packaging with

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