

# **MANGO FRUIT PRECOOLING TECHNIQUES**

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## **ABSTRACT**

Due to the short post harvest life of tropical fruits like mangoes, precooling is an important post harvest unit operation. There are several techniques commercially employed such as hydrocooling, mechanical cooling augmented by liquid nitrogen, air cooling. The precooling process should be as fast as possible, but the cooling should not result in any chilling injury to the fruit. Liquid nitrogen has high cooling capacity and due to the inertness of the vaporized nitrogen gas, is very much applicable for precooling purposes. Its boiling point is  $-195.6^{\circ}\text{C}$ . This severe cold temperature raises concerns on the possibility of chilling injury to the fruit. Hence, the present study was undertaken to establish different cooling systems where liquid nitrogen can be employed to augment the air cooling process. Other common precooling techniques for mangoes are hydrocooling and air cooling with mechanical refrigeration. It has been observed that all the commercial cooling techniques, such as hydrocooling, air cooling have comparable effect on the overall quality as measured through some of the physicochemical parameters such as firmness, aroma. However, it has also been observed that liquid nitrogen augmented air cooling technique has some edge over other conventional commercial cooling in terms of time required for cooling.

**KEYWORDS:** Precooling Techniques, Mango, Fruits