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Effect of post harvest treatments on shelf-life and ripening behaviour of mango (*Mangifera indica* L.) fruits cv. KESAR

P.T. KACHA AND N.L. PATEL

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See end of the article for authors' affiliations

Correspondence to:

N.L. PATEL
Department of Pomology, ASPEE College of Horticulture and Forestry, Navsari Agriculture University, NAVSARI (GUJARAT) INDIA

ABSTRACT

The present investigation was conducted during 2006-07, 2007-08 and 2008-09 at Post Harvest Technology Laboratory, Navsari Agricultural University, Navsari. An experiment was laid out in Completely Randomised Design with Factorial concept with three factors at different levels *viz*., hot water (2-levels *i.e.* H_1-Hot water treatment at 52°C for 10 minutes and H_2-Without hot water treatment), pre-cooling (4-levels *i.e.* C_1-Hydro-cooling at 8°C for 10 minutes, C_2-Hydro-cooling at 12°C for 10 minutes, C_3-Fruits pre-cooled at 8°C for 30 minutes and C_4-Fruits pre-cooled at 12°C for 30 minutes) and packaging treatments (4-levels *i.e.* M_1-LDPE packaging, M_2-HDPE packaging, M_3-News paper packaging and M_4-Tissue paper packaging) were studied. Results indicated that the hot water treatment (H_1) at 52°C for 10 minutes, hydro-cooling at 8°C for 10 minutes (C_1) and HDPE packaging (M_2) of mango fruit had minimized the physiological loss in weight (%), ripening (%) and spoilage (%) during storage. Consequently, these treatments also significantly increased the days required for ripening and ultimately increased the shelf-life of mango fruits during storage at ambient temperature.

Key words : Mango, Hot water, Hydro-cooling, HDPE packaging, Post harvest treatment, Shelf-life.

Mango (*Mangifera indica* L.) is the main fruit of Asia and has developed its own importance all over the world. Mango is a national fruit of India. Due to its excellent flavour, delicious taste, delicate fragrance and attractive colour, it is known as 'king of fruits'. Besides, it is considered to be a good source of β-Carotene and vitamin-A, vitamin-B complex, vitamin-C, nutritive minerals, digestible sugars and trace elements. India is the largest producer of mango (1,25,37,900 MT) occupies about 20,20,600 hectares (Anon., 2006). Rapid strides are made for the enhance production and increasing area under cultivation, but very less systematic arrangement have been made for the suitable post-harvest handling of produce, resulting in 20 to 30 per cent post-harvest losses. This is mainly due to lack of infrastructure facility, like packing house for sorting, grading, packing, non availability of the commercial cold storage and lack of the cool chain during transport and storage. The losses occur at the farm level (harvesting) and during grading, transport, storage and marketing (Krishnamurthy and Rao, 2001). Control of these losses alone may contribute a lot for increasing the availability of fruits for the common man. Reduction of these losses both qualitatively and quantitatively could be achieved by proper harvesting methods, harvesting of fruits at an optimum maturity, pre-cooling of the fruits prior to the storage, adoption of the pre and post-harvest treatments and proper marketing procedures.

Mango cv. KESAR is famous for its excellent quality and pleasant flavour. It is one of the leading commercial mango cultivars of Gujarat. It is usually preferred for indigenous market but now a days getting place in export market also. It is high yielder, regular bearer, having good consumer acceptance because of its attractive shape, size, colour of pulp and good keeping quality.

The present study was undertaken to investigate the possibilities of extending shelf-life and ripening behaviour of Kesar mango by applying various post harvest treatments

MATERIALS AND METHODS

The experiment was conducted at Post Harvest Technology Laboratory, Navsari Agricultural University, Navsari during 2006-07, 2007-08 and 2008-09. The selected fruits were free from mechanical damage, bruises, sunburns and fungal/insect attack. The fruits were washed with tap water in the laboratory, air dried and then treatments were applied. The experiment was laid out in Completely Randomised Design with Factorial concept in which three factors at different levels *viz.*, hot water (2-levels *i.e.* H_1-Hot water treatment at 52°C for 10 minutes and H_2-Without hot water treatment), pre-cooling (4-levels *i.e.* C_1-Hydro-cooling at 8°C for 10 minutes, C_2-Hydro-cooling at 12°C for 10 minutes, C_3-Fruits pre-cooled at 8°C for 30 minutes and C_4-Fruits pre-cooled at 12°C for 30 minutes) and packaging treatments (4-levels *i.e.* M_1-LDPE packaging, M_2-HDPE packaging, M_3-News paper packaging and M_4-Tissue paper packaging) were studied. Thus in total 32 treatment