



Research Paper

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Early and uniform ripening of mango with ethrel treatment cv. SENDURA

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ABSTRACT : Mango (*Mangifera indica* L.) is one of the important fruit crop, is being cultivated successfully throughout the country as well as many other regions of the world. Due to its delicious flavor, taste and health benefits, its consumption and hence the international trade is increasing. Mango, being a perennial crop, provides opportunities and many challenges, in the production and post harvest management. Mango fruits ripen unevenly on the tree while the natural ripening process after harvest is also very slow and unpredictable. To overcome such problem, fruits can be ripened by exposing them to ethrel, which initiate the early and uniform ripening process. Now a day to meet the market demand mango traders use calcium carbide for ripening. Calcium carbide contains impurities of arsenic and phosphorus hydride, which are toxic to human health. A study conducted during 2007 at Horticultural College and Research Institute, revealed that the post harvest dipping of mango cv. Sendura with ethrel (500 ppm) for 5 minutes at 52°C and storage at ambient conditions, induced uniform ripening in third days as against six days in control, with pleasant flavour, desirable texture and acceptable quality, which is not only in mature fruits but also in early harvested mango fruits. The quality attributes viz., TSS (18.50° Brix), titratable acidity (0.29%) and ascorbic acids (31.43mg/100g of pulp) were the highest in cv. Sendura dipped in 500 pm ethrel, while in control TSS, acidity and ascorbic acid, were 13° Brix, 0.32% and 30.09 mg/100g of pulp, respectively.

KEY WORDS : Early and uniform ripening, Mango, Ethrel treatment

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Mango (*Mangifera indica* L.) is the most popular fruit among millions of people in india, where it is considered to be the choicest of all indigenous fruits. Mango fruits ripen unevenly on the tree and the natural ripening process can be very slow and unpredictable. To overcome this problem, fruits can be ripened artificially by exposing the fruits to certain chemicals, which initiate the ripening process. (Campbell and Malo, 1969) found that ripening of mature-green mangos was accelerated in response to ethylene released from 2-chloroethylphosphonic acid (Ethephon). Ethephon/ethrel is an ethylene-releasing chemical, which can be used to improve fruit colour development and stimulates ripening process of the fruit. Fruit ripening is a genetically programmed stage of development overlapping with senescence (Watada *et al.*, 1984). Calcium carbide treatments are extremely dangerous as commercial calcium carbide contains impurities of arsenic and phosphorus

hydride, which are toxic to human health. Acetylene is generated from calcium carbide by the addition of water or by contact with moisture in air and act on fruits causing them to ripen in a similar manner to ethylene. Ethephon/ etherl has been successfully used to improve and enhance red colour development in fruits (Knavel and Kemp, 1973; Batal and Granberry, 1982). The ethephon treated fruits improves the peel color and accelerates the mango fruit ripening (Lakshminarayana *et al.*, 1975). The benefits of ethylene-induced ripening were recently reported for 'Ataulfo' Mangoes (Mantalvo *et al.*, 2007). The rate of ripening in mangoes can be accelerated by treating the fruit with ethylene (Kader and Mitcham, 2008).

RESEARCH METHODS

Enhancing the mango ripening by feasible treatments under ambient conditions, experiment was carried out with