

Effect of natural plant extracts and wrapping materials on storage behavior of mango (*Mangifera indica* L.) cv. KESAR

G.S. SHINDE, R.R. VIRADIA, S.A. PATIL AND D.K. KAKADE

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See end of the article for authors' affiliations

Correspondence to:

G.S. SHINDE
Department of
Horticulture, Junagadh
Agricultural University,
JUNAGADH (GUJARAT)
INDIA

ABSTRACT

The investigation was carried out with a view to study the retardation of ripening process, to increase the shelf life and to minimize the post harvest losses in mango fruit cv. 'Kesar', under the influence of various plant extract treatments *viz.*, neem leaf extract, bael leaf extract, neem oil and sesame oil; and wrapping material *viz.*, tissue paper and polyneet wrapping. Matured freshly harvested mango fruits of uniform size were treated with different treatments as post harvest dips for ten minutes. Then fruits were wrapped with wrapping materials and kept in Corrugated Fiber Board (CFB) boxes at ambient temperature ($35\pm 2^{\circ}\text{C}$). The fruits treated with different plant extracts and wrapped in different wrapping materials, showed lower and slower rate in physical and chemical changes than control fruits. The fruits treated with neem oil 10 per cent proved to be most effective with respect to lower physiological loss in weight, higher firmness of fruits, minimum spoilage and highest organoleptic score. The treatment was also promising for slower increase in TSS, while slower decrease in ascorbic acid and acidity during storage. Among wrapping materials, tissue paper was promising material.

Key words : Mango, Storage, Neem, Wrapping, Tissue paper.

Mango is an important fruit crop of India as well as tropical and subtropical countries of the world. Being a useful and delicious fruit, it is a part of culture and religion since long time. Besides fine taste, its high palatability, sweet fragrance, attractive colour and nutritional value, it is called as "The king of tropical fruits." The fruit is considered to be a good source of vitamin-A, B-complex and C; β -carotene, nutritive minerals, digestible sugars and trace elements. Its taste, flavor and aroma are very fascinating to every one. Because of these naturally built in qualities, it has high demand in global market. Due to changes in the habits of people and awareness in growers, export of mango is now gaining global popularity. India is the largest producer of mango in the world with the production of approximately 14 million tones, contributing more than 57 per cent share of the world production. India has nearly 1000 varieties and grown in an area of 1.23 million hectare (Anonymous, 2007). In the year 2006-07, India exported 79,060.88 metric tones of mangoes worth Rs. 141.94 crores (APEDA, 2007). In Gujarat, mango covers around 1,01,988.00 hectares with a production of about 8,34,288.00 metric tones. Post harvest handling can play a major role in reducing post harvest losses. A number of post harvest treatments such as wax emulsion, plant growth regulators, fungicides, polyethylene film and various chemicals (Chauhan and Joshi, 1990 and Ali *et al.*, 1992) are being used to extend the shelf life of fruits. But the environmental consciousness on the part of

scientists and general public awareness towards the increasing use of chemicals on food stuff and their deleterious effect on human and environment are driving force to find the use of suitable, eco-friendly and minimum risk agents for storage of fruits for longer period. Present studies were, therefore, undertaken to find out the best natural plant extract and wrapping material in extending the shelf life of mango at ambient temperature.

MATERIALS AND METHODS

The investigation was carried out in post graduate laboratory of Department of Horticulture, Junagadh Agricultural University, Junagadh during the year 2007. Green mature of uniform size and shape fruits of mango cv. KESAR were selected. The treatments were given as post harvest dips. In these treatments, the fruits were dipped for 10 minutes in neem leaf extract of 10/20 per cent and bael leaf extract of 10/20 per cent, then air dried for 30 minutes after each treatment. Treated fruits were wrapped in different wrapping materials and packed in corrugated fibre board (CFB) boxes and stored at ambient condition. For preparation of 1 liter of 10 per cent neem oil emulsion, one teaspoon full of teepol was mixed in 50 ml distilled water and then 100 ml neem oil was added and mixed well. The volume was then made up to 1 liter by adding distilled water. The experiment was laid out on Factorial Completely Randomized Design with three replications, having totally twenty one treatment combinations. The fruits were analyzed periodically for