A REVIEW

INTERNATIONAL JOURNAL OF PROCESSING AND POST HARVEST TECHNOLOGY
Volume 2 | Issue 1 | June, 2011 | 64-70

A study on fruit ripening

■ PARAG PANDIT

How to cite this paper: Pandit, Parag (2011). A study on fruit ripening, *Internat. J. Proc. & Post Harvest Technol.*, **2** (1) : 64-70.

Research chronicle : Received : *06.04.2011;* **Accepted :** *22.05.2011*

KEY WORDS : Fruit ripening, Biochemical changes during ripening

Ripening is a process in fruits that causes them to become more palatable. In general, a fruit becomes sweeter, less green, and softer as it ripens. The requirement of fruit eating consumer is properly ripe fruit only. Semi ripe or unripe fruits are being consumed as processed products like, jam, jelly, candies, pickles, preserves, etc. The starch as reserved food in fruit is converted in to sugar during the ripening process and it reaches at its optimum stage at the end of ripening. Against that it was observed that acidity of the fruits reduce, even though the acidity of fruit increases as it ripens, the higher acidity level is not reflected in its flavor, which can lead to the misunderstanding that the ripen fruit is more 'sweeter' and not 'sour'. This curious fact is attributed to the brix-acid ratio. Initial colour of any fruit is green; this is attributing to the chlorophyll presence in the skin of the fruits. Magnesium (mg) is the main element in the chlorophyll, which reflects the green colour of all unripe fruits. During the process of ripening, the magnesium oxidized and became transparent and real ripen fruit colour appears. Calcium (Ca) and pectin keeps the structure of fruit. During the due course of ripening process, the calcium and pectin are disintegrating in the pulp. In absence of bonding agent and main structural component, fruit looses its firmness and became softer. After achieving fruit maturity, the ripening process continued even after harvest, this type of fruits falls under the category of climacteric fruit, but in case of non-climacteric fruit; it ripen only on the plant before harvest. Ripening stage of fruit could be identified by non-destructive physical method like, measurement of respiratory gases; *i.e.* oxygen (O_2) and carbon dioxide (CO_2).

AUTHOR OF THE CORRESPONDENCE

PARAG PANDIT, Centre of Excellence on Post Harvest Technology, Navsari Agricultural University, Navsari (GUJARAT) INDIA
E.mail : pdt_pdt@yahoo.com

Biochemical changes during ripening:

Ripening is a dramatic event in the life of a fruit – It transforms a physiologically mature but inedible plant organ into a visually attractive olfactory and taste sensation. Ripening is an irreversible process and marks the completion of development of fruit and the commencement of senescence. It is the result of complex of changes, many of them probably occurring independently of one another. The changes that occur during the ripening of fleshy fruits are as under.

– Seed maturation.
– Colour change.
– Abscission (Detachment from parent plant).
– Change in respiration rate.
– Change in rate of ethylene production.
– Change in tissue permeability and cellular compartmentation and softening,
– Change in composition of pectic substance.
– Change in carbohydrates composition.
– Change in organic acid.
– Change in protein.
– Production of flavour volatiles.
– Development of wax on skin.

Colour development:

Most of the fruits, vegetables and ornamentals are in green colour at early stage of developments and with the time it changes to its characteristic colour. The green colour is due to the presence of chlorophyll, which is a magnesium – organic complex. The loss of green colour is due to degradation of the chlorophyll structure. The principle agents responsible for this degradation are pH change, oxidative systems and chlorophylases enzymes.