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Anti darkening treatments and packaging on physico-chemical changes in whole and sliced fruits on frozen anola cv. GUJARAT ANOLA-1

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ABSTRACT : With the aim of extending the post-harvest life by minimizing the physico-chemical changes in aonla fruits of Gujarat Aonla-1 variety,an experiment was taken comprised of two fruit preparation types (whole and sliced fruits), three chemical treatments (1% ascorbic acid, 1% citric acid and water) and three packing materials (aluminum foil bag,200 gauge polyethylene bag and paper box). Treated fruits were quickly frozen at-30^0 C for 12 hours and stored at -18^0 C in cold storage. Observations were taken for physico-chemical changes in aonla fruits at three intervals *i.e.* initial, after four and eight months of storage.At initial stage the differences in physico-chemical properties were non significant in all the treatments. But after four and eight months of storage the whole fruits stored in aluminium foil bag recorded significantly higher vitamin C, acidity, tannin and moisture content as compared to the fruits stored in polyethylene bags or paper box. On the other hand, fruit slices maintained good firmness and also recorded higher TSS as compared to whole fruits. The chemical treatments were failed to induce any significant effect on physico-chemical properties of whole fruits or slices of aonla during storage. The result suggests that whole fruits or slices of aonla cv. GUJARAT AONLA-1 packed in aluminium foil bag can be stored under frozen situation upto eight months with acceptable quality.

KEY WORDS : Aonla, Slices, Frozen, Aluminium foil

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Aonla or Indian gooseberry (*Emblica officinalis* Gaertn), a versatile tree is adaptable in diverse soil and climatic conditions. The fruits have high nutritive and therapeutic values. It is used in more than fifty products and ayurvedic formulations among which,aonla pulp, juice, squash, RTS beverage, jam, candy, powder, etc. are more popular. Storage of fresh fruits as well as its products is essential to capture the emerging consumer market. In appropriate packaging and handling damage the fruits and facilitate development of many post-harvest disorders or diseases. The present information on post-harvest storage and packaging is not sufficient to extend the shelf life of aonla. Therefore, there is an urgent need to develop technologies for packing of fresh fruits to minimize the losses. Aonla fruits develop darkening if their cut surfaces exposed to air. Citric acid or ascorbic acid can be used to prevent darkening and flavor loss of aonla fruits.It not only preserves natural colour and flavour of fruits, but adds nutritive value as well. Quick freezing is one of the easiest and least time-consuming ways for storage of fresh fruits. Extreme cold in freezing retards growth of microorganisms and slows down changes that affect quality or cause spoilage in fresh fruits. Little information is available on the use of packaging for freezing of fruits. Therefore, an investigation was taken to study anti-darkening treatments and packaging materials on whole and sliced frozen fruits of aonla cv. Gujarat Aonla-1.

RESEARCH METHODS

The present investigation was carried out at Department of Horticulture, B.A. College of Agriculture, Anand Agricultural