

## Standardization of process for preparation of sweet Aonla supari

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### Abstract

Osmotic dehydration is a process of partial removal of water by soaking foods, mostly fruits and vegetables, in hypertonic solutions. Fresh Aonla (*Emblica officinalis*) fruit are highly acidic & unsuitable for direct consumption. Hence, fruits are processed into value added products such as preserve; pickles have been prepared by using optimum matured fruit keeps longer and have better organoleptic qualities. To develop a product sweet aonla supari, aonla first osmotically pretreated in different experimental combinations of osmotic process parameters i.e. sugar concentration, solution temperature, solution to fruit ratio and immersion time were performed. The study was conducted to standardize the process for preparation of sweet aonla supari by varying the sugar concentration (50, 70, and 80<sup>0</sup>B), solution temperature (60-80<sup>0</sup>C), solution to fruit ratio (1:3) and immersion time (120 min) to evaluate the organoleptic characteristic and to study the physico-chemical properties on the overall acceptability of osmodried sweet aonla supari. Four sample prepared A,B,C and D. The product was checked for sensory quality attributes i.e. colour, texture, taste, mouth feel, and overall acceptability.

Keywords: - Aonla (*Emblica officinalis*), Supari, Osmotic-dehydration, Organoleptic properties

### Introduction

Fruits keep respiring after harvesting and many changes like browning, loss of moisture, texture occur resulting in reduced market value and acceptability. Therefore, it is necessary to preserve those fruits and vegetables. These Fruits & Vegetables can preserve in many ways like high temperature, low temperature, Canning, Drying. Osmotic dehydration is a process of partial removal of water by soaking foods, mostly fruits and vegetables, in hypertonic solutions. The diffusion of water is accompanied by simultaneous counter diffusion of solutes from solution into tissue. Leakage of natural solutes from plant tissue occurs because the cell membranes of plant tissue responsible for osmotic transport are not perfectly selective but this flow is negligible, although it may be important for the organoleptic and nutritional properties of the product. The food, which has been osmotically dehydrated, can be further processed by freezing, freeze-drying vacuum drying and air-drying. Aonla (*Emblica officinalis*) is one of the minor fruit crops of commercial significance. It has acquired wide popularity all over the World due to medicinal properties. Fresh Aonla fruit are highly acidic & unsuitable for direct consumption. Hence, fruits are processed into value added products such as preserve; pickles have

been prepared by using optimum matured fruit keeps longer and have better organoleptic qualities. It is rich in polyphenol and Ascorbic Acid. The high level of ascorbic acid makes it good as an antiscorbutic, diuretic, laxative and antibiotic. It also possesses hypoglycaemic activity.

### Materials and Methods

#### Osmotic dehydration

#### Chemical analysis

Estimation of sugars, Estimation of reducing sugars, Titrable acidity, Estimation of Ascorbic acid.

Sample Preparation : The fresh aonla fruit (*Phyllanthus embolic*) were obtained from the local market. Fresh, uniform, and sound fruits were selected and brought to the laboratory as and when required.

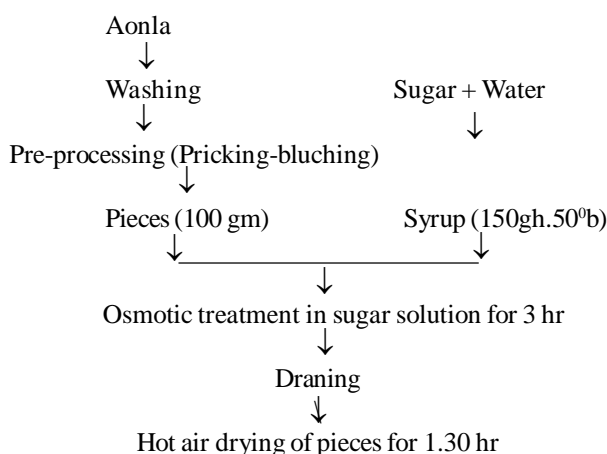
#### Method Adopted:

Sample-1 Aonla supari: Aonla were taken pre-processing pricking by fork or wooden pricker, steep in 2% salt solution for 24hr. steep in 2% alum solution for 24hr. blanching until it become soft) and cut into pieces of sugar syrup of 50 Brix containing 0.1% citric acid was prepared. The ratio of aonla pieces to sugar syrup was 1:3. The sugar syrup was brought to room temperature and aonla quarters were put in it for 3 hr. Then the pieces were removed from syrup by completely draining. The pieces were dried in 60-80<sup>0</sup>C hot air over for about 1 hr. 30 min. Total analysis of fresh aonla and osmotically dehydrated aonla supari was carried out.

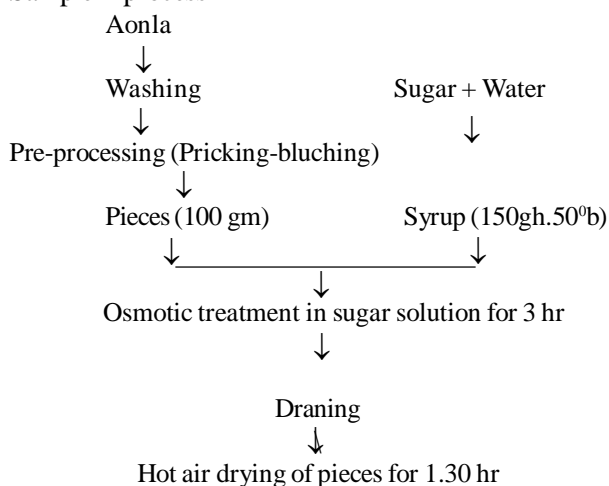
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Sample 1 process:



Sample 1 process



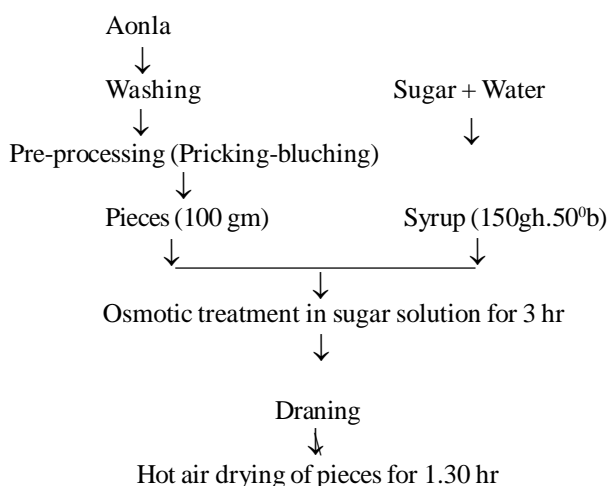
Sample-2 Aonla supari:

Aonla were taken pre-processing pricking by fork or wooden pricker, steep in 2% salt solution for 24hr. steep in 2% alum solution for 24hr. blanching until it become soft) and cut into pieces of sugar syrup of 70<sup>0</sup> Brix containing 0.1% citric acid was prepared. The ratio of aonla pieces to sugar syrup was 1:3. The sugar syrup was brought to room temperature and aonla quarters were put in it for 3 hr. Then the pieces were removed from syrup by completely draining. The pieces were dried in 60-80<sup>0</sup> C hot air over for about 1 hr. 30 min. Total analysis of fresh aonla and osmotically dehydrated aonla supari was carried out.

Sample-3 Aonla supari :

Aonla were taken pre-processing pricking by fork or wooden pricker, steep in 2% salt solution for 24hr. steep in 2% alum solution for 24hr. blanching until it become soft and cut into pieces of sugar syrup of 80<sup>0</sup> Brix containing 0.1% citric acid was prepared. The ratio of aonla pieces to sugar syrup was 1:3. The sugar syrup was brought to room temperature and aonla quarters were put in it for 3 hr. Then the pieces were

Sample -2 process:



removed from syrup by completely draining. The pieces were dried in 60-80<sup>0</sup>C hot air over for about 1 hr. 30 min. Total analysis of fresh aonla and osmotically dehydrated aonla supari was carried out.

Organoleptic evaluation

A panel of judges did organoleptic evaluation of product sweet aonla supari by Hedonic rating test. Organoleptic evaluation of processed products was carried out Nine Point Hedonic Scale. Panel contains five members and the qualities of prepared product was checked for all sensory quality attributes i.e. colour, texture, taste, mouth feel, and overall acceptability. The products having highest score with respect to all above quality attributes were found to be superior.

## Results Discussion

Recipe for preparation of sweet aonla supari

S No.	Material required	Sample A (gm)	Sample B (gm)	Sample C (gm)	Sample D (gm)
1.	Raw Aonla	100	100	100	100
2.	Sugar	-	150	210	240

Where,

The sample A is raw aonla (Without Treatment). Sample B was prepared by using 100gm aonla and 150gm sugar (50<sup>0</sup> Brix). In sample C, quantity of aonla was kept constant and sugar quantity was 210gm (70<sup>0</sup> Brix). In sample D, also, quantity of aonla kept constant and sugar quantity was 240gm (80<sup>0</sup> Brix).

From the above Table 1 it is observed that maximum acidity is for raw aonla i.e. 2.8% and minimum acidity is observed in case of Sample B i.e. 0.391%. Maximum reducing sugar is observed in case of Sample D i.e. 38.93% and minimum reducing sugar is observed in case of sample A i.e. 5.08%. Also maximum total sugar is observed in case of Sample D i.e. 43.36% and minimum total sugar was for sample A i.e. 6%. High ascorbic acid content is observed in case of Sample A i.e. 584mg and low ascorbic acid is

observed in case of sample B i.e. 254.31 mg%.

Table 1: Chemical analysis of raw aonla and aonla supari

S No. Parameters	Analysis	Sample A	Sample B	Sample C	Sample D
1. Acidity		2.80%	0.391%	0.701%	1.20%
2. Reducing sugar		5.08%	14.22%	21.84%	38.93%
3. Total sugar		6.00%	16.86%	23.66%	43.36%
4. Ascorbic		584.0mg	254.3mg	356.0mg	456.0mg

From the Table 2 it is observed that maximum colour is for raw aonla, and minimum colour is observed in case of Sample D. It is observed that, texture of Sample A is good compare to sample D. In addition, it is found that taste of Sample C is good and minimum taste is observed in case of Sample B. High mouth feelness is observed in case of Sample A and low mouth feelness is observed in case of Sample D. From above discussion, it is found that over all acceptability is high in Sample C and less in Sample D.

Table 2: Organoleptic evaluation of prepared product

Sample	Colour	Texture	Taste	Mouth feel	Overall acceptability
A	9.0	8.5	8.2	8.5	8.0
B	8.2	8.2	8.0	7.5	7.5
C	8.2	8.0	8.5	7.2	8.1
D	8.0	7.8	8.1	7.1	7.2

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