



PM Formalisation of Micro Food Processing Enterprises Scheme

Processing of Aonla Juice



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CHAPTER -1

INTRODUCTION

1.1. History of Aonla

Aonla (*Emblica Officinalis* Geartn) is one of the oldest minor fruits of India and considered to be a “wonder fruit for health” because of its unique properties. It belongs to the family Euphorbiaceae and is native to India, Sri Lanka, Malaysia, and China. It is one of the most important fruits of the tropics and subtropics of the Indian subcontinent. The indigenous fruit has extensive adaptability to grow in diverse climatic and soil conditions. It is known by different names such as ‘Amla’,



‘Amalakki’, ‘Nelli’, ‘Indian gooseberry’, etc. Being a very rich source of vitamin C (699 mg ascorbic acid/100 g) in pulp and of other nutrients such as polyphenols, pectin, iron, calcium, and phosphorus, the fruit is a potent antioxidant, hypolipidemic and antibacterial; it has antiviral and antacid properties. However, owing to its highly acidic and astringent taste, low total soluble solids (TSS), and poor flavour and colour, it is not popular as a table fruit. The fruit is highly perishable in nature; in India, it is available for a short period from October to January. Its storage life in atmospheric conditions after harvesting is only 5–6 days. Appropriate storage and processing methods can curtail the postharvest losses to 30% and make the fruit available for longer. The few postharvest technologies that exist are complex and are unaffordable to small farmers at the farm level. Due to its astringent nature, consumers are hesitant to eat it in raw form. Attempts are being made to produce value-added products that are not only nutritious but also accepted by consumers. Thus, the various value addition technologies available to reduce the postharvest losses of aonla fruit.

Aonla juice is said to have great rejuvenating and antioxidant properties. It is considered to be one of the richest sources of natural Vitamin C. It is said to relieve inflammation from the alimentary canal and is also considered to be useful in hyperacidity, blood sugar management, etc.

1.2. Importance of Aonla

As compared to an apple, the fruit of aonla contains three times more protein and 160 times more vitamin C (699 mg/100 g). Except for Barbados cherry; it is the richest source of vitamin C among all the fruit. Aonla is not popular as table fruit because of its astringent taste

but it shows great potential for processing and medicinal uses in various Products and the demand for aonla product in the market is very high.

1.3. PRODUCTS AND ITS APPLICATION:



The large part of Aonla is used making ayurvedic medicines, cosmetic products, chayavanprash, and other value added products like preserve, sherbet, juice, RTS drinks, jam, fruit bar, dehydrated Aonla whole or powder, mouth fresheners, etc. Chayavanprash is generally considered as health tonic in all respects whereas ayurvedic products like TRIFALA is used for constipation and cosmetic products like hair oils or creams are useful for keeping hair and skin healthy respectively. Aonla consumes in very large Quantity in India. The food products f aonla are considered healthy and very source of vitamin C.

1.4. Statistics

1.4.1. Global scenario

The global Aonla market is segmented on the basis of form, application, and distribution channel, and region type. Market segment as per application, it is segmented on the basis of its form in powder and liquid. Among these form segments, the powder segment is expected to contribute more than 50% market share and expected to grow at higher space. Another segment is on the basis of the distribution channel which includes health stores, drug stores, online retailing, and other (direct-selling) distribution channels. On the basis of application, the market is segmented into pharmaceuticals, dietary supplements, cosmetics, food and beverages, and others. On analysing the demand of Aonla in form of powder, it was assessed that pharmaceuticals, cosmeceuticals, and the food and beverage industry acquires the majority of share in terms of volume. The primary reason behind its increasing demand for aonla in the global level market is due to its richness in natural quality and organic nature. In the food and beverage industry, Aonla powder is used as an important anti-oxidant agent in various food products to maintain a demand for Aonla based products. The global Aonla market is also segmented on the basis of form primarily into powder and liquid. Among these, the powder segment is expected to fuel the Aonla market over the forecast period. Hence, the global Aonla is market is expected to significantly increase the revenue contribution over the forecast period.

1.4.2. National scenario

Aonla is presently underutilized fruit but has enormous potential in the world market. Its medicinal and nutritional properties and culinary uses need to be highlighted. It is almost entirely unknown in the world market and needs to be popularized. Most of the orchardists sell their crop to pre-harvest contractors to avert the price and weather risks. Aonla orchards are contracted after seeing the fruit load on the tree. There is one wholesale market for the marketing of aonla in Pratapgarh district. Fruits are brought from the orchard to the wholesale market for disposal. The commission agent mediates in the selling of fruits. Trading between traders and commission agents is done through concealed auction. The wholesale market is not fully regulated. The market attracts traders from around the country viz. Mumbai, Coimbatore, Salem, Amritsar, Delhi, Hathras, etc. While the South Indian markets require immature/premature fruits for beverages and other product preparation.

1.5. Important varieties cultivated in different states of India are given below

1. **Chakaiya:** It is a prolific bearer. The fruits are flat, with smooth skin which is greenish in colour. Fruits are small to medium in size weighing 26 g having a TSS of 10.70 brix. The trees are spreading in nature.
2. **Banarasi:** The fruits are large in size flattened oblong with smooth skin, yellowish with characteristic three raised segments. On an average each fruit weighs 38g. It is a shy bearer. Trees are having upright growth habit.
3. **Krishna (NA – 4):** A chance seedling of Banarasi developed at Narendra Deva Agrl. University, Faizabad with medium to large size (40 g) conical, angular, smooth yellowish fruits with red blush on the exposed surface. It has fibreless flesh which is semitransparent and hard. It is a moderate bearer.
4. **Kanchan: (NA-5):** It is supposed to be a chance seedling of Chakaiya. A profuse bearer with small to medium-sized fruits (32g) flattened oblong; skin is smooth, yellowish in colour. It was also developed at Narendra Deva Agrl. University, Faizabad.
5. **Francis :** Fruits are large (41.5g) with a TSS of 12.00 brix, flattened oval, greenish yellow in colour, soft and almost fibreless. The branches have dropping habit.

6. **BSR-1** : It was developed at Agricultural Research Station, Bhavanisagar of Tamil Nadu Agricultural University, Tamil Nadu. The trees are medium in height and spreading and hence suited for accommodating more number of trees per unit area (can be planted at 6M x 6M spacing). Fruits are medium in size (27g) with flat stylar end and round calyx end. Each fruit has 6 segments, the juice has a TSS of 18.10 brix.
7. The varieties recommended for cultivation are Banarasi, Chakaiya, Francis, NA-4 (Krishna), NA 5 (Kanchan), NA-6, NA-7, NA-10 and BSR-1 (Bhavanisagar).

1.6. Aonla producing state and their production share in India

S. No.	State	Production(000 Tonnes) 2017-18	
		Production	Share(%)
1	Uttar Pradesh	384.32	35.79
2	Madhya Pradesh	302.18	28.14
3	Tamil Nadu	152.87	14.24
4	Gujarat	81.90	7.63
5	Chattisgarh	43.29	4.03
6	Assam	17.76	1.65
7	Bihar	14.92	1.39
8	Maharashtra	12.25	1.14
9	Jammu & Kashmir	12.10	1.13
10	Rajasthan	11.19	1.04
11	Andhra Pradesh	10.76	1.00
12	Haryana	10.75	1.00

13	Punjab	7.70	0.72
14	Nagaland	2.88	0.27
15	Uttarakhand	2.65	0.25
16	Himachal Pradesh	1.97	0.18
17	Jharkhand	1.49	0.14
18	Mizoram	1.32	0.12
19	Telangana	0.71	0.07
20	Karnataka	0.68	0.06

Source: National Horticulture board (NHB, 2018)

1.7. Value Added Products from Aonla

There are various product can be prepared from Aonla fruit viz., jam, sauce, chutney, preserve, candy, Osmo-air dried aonla slices, pills, pickle, shreds, etc.

➤ Aonla Preserve:

Aonla preserve is a Very popular traditional product, which is also known as Murabba in India. Murraba of Aonla is a very popular traditional product of India. It has the beneficial effect of purifying blood and also helps in reducing the cholesterol level and improving eyesight. Aonla



Murabba is prepared from sound matured fruits which can be whole or in large pieces of fruit. In which sugar syrup are ads till it becomes tender and transparent. The minimum fruit portion in the preserve should be 55 percent. Pricking (piercing) is done in aonla to remove the astringency and to allow the syrup to go inside the fruits. 55% of fruit are pierced manually or by machine to allow the sugar syrup to go inside the fruit to remove the astringency.

➤ **Aonla Chutney:**

Aonla chutney is generally hot, smooth. Sweet, spicy, mellow flavored, and appetizing. Sometimes raising and dry fruits are also added to increase its taste and nutritional value.



➤ **Aonla Candy:**

Aonla Candy Fruit candies are becoming more and more popular because of high acceptability, minimum volume, higher nutritive value and longer storage life. A fruit impregnated with sugar, removed, drained, and dried is called candied fruit or fruit candy. It should have a maximum of 75 percent of total soluble solids (TSS).



➤ **Aonla Jam**

Aonla Jam is a concentrated fruit product processing a fairly heavy body rich in natural fruit flavor. Pectin in fruit gives it a good set and its preserved by a high concentration of sugar. Jam of Aonla is can be prepared by boiling the fruit pulp and juice to a reasonably thick consistency with an adequate amount of sugar. The 68 % total soluble solid (TSS) and 45 % fruit component is the ideal form of jam.

➤ **Aonla Sauce/ketchup**

Sauce and ketchup have the same ingredients and are also cooked in the same manner as chutney except that fruit/vegetable pulp or juice used are sieved after cooking to



remove the skin, seed, and stalk of fruits, vegetables, and spices to give a smooth consistency to the final product.

➤ **Aonla Pickles**

The demand for Aonla pickle increasing rapidly in the market due to its taste and medicinal benefits. Aonla pickles are generally sour, spicy



1.8. Scope of Aonla Industry

Aonla fruits and other parts are utilized for preparation of value added food items, cosmetics, and ayurvedic preparations. The limitations have been low capacity, unhygienic processing, and labour intensive and poor utilization of by-products. There is scope for the development of types of machinery for harvesting, grading, pricking, de-stoning, segment breaking, juice extraction, Osmo-centration, etc. There are quite a large array of opportunities to develop and introduce new products as food additives, cosmetic preparations, ayurvedic and herbal preparations. Optimization of technology in terms of quality, retention of maximum nutrition and cost-effective technology development will go a long way in harnessing the potential of aonla.

CHAPTER 2

PROCESSING OF AONLA JUICE

2.1. Aonla Processing

The postharvest losses in aonla vary from 30% to 40% due to its perishable nature, which reduces the market value. Value addition through processing would be the only effective tool for economic utilization of increased production of aonla in the future. Processing not only reduces the postharvest losses but also provides higher returns to the growers. A number of products such as murabba, pickle, candy, juice, squash, jam, jelly, powder, etc., are prepared from aonla fruits.



2.2. Processing technology of aonla juice are given below:

Raw material

Aonla fruit	100 kg
Water	100 litre
KMS	65 gram

➤ Harvesting

The change in seed colour from creamy white to brown is indicative of fruit maturity. Fully developed fruits, which show signs of maturity, are harvested. This helps in the size gain of the remaining fruit. Delay in harvesting results in heavy dropping of fruits particularly in varieties like Banarasi and Francis. It also adversely affects the following years bearing. Individual fruits are plucked by climbing on trees with the help of pegged bamboo or ladder. Harvesting should be done early or in the late hours. A budded/grafted aonla tree starts bearing 3rd year onwards after planting, whereas a seedling tree may take 6-8 years for the start of bearing.

Vegetatively propagated plants attain full bearing within 10-12 years and may continue to bear 60-75 years of age under well-managed conditions. Yield varies greatly in aonla varieties.

Banarasi is a shy bearer, Francis and NA-6 are average bearers while Kanchan and NA-7 are prolific bearers. An aonla tree may bear from 100 to 300 kg per tree, thus giving 15 to 20 tonnes production per hectare of area.



➤ **Storage**

Aonla fruits are highly perishable in nature as it's storage in atmospheric conditions after harvesting is very limited. Due to its perishable nature, it is difficult to store or transport aonla fruits over long distances. In order to have a good income from aonla, it must be sold immediately in the market. But, the problem arises when there is a glut in the market. To get profit during that period, proper storage facilities should be available to help the farmers get the maximum profit. The extension of shelf life during storage should be made possible by checking the rate of respiration, transpiration, and microbial infection. Plant growth regulators, certain chemicals, and fungicides have played a great part in short period storage. The fruits may be kept in cold storage for 7-8 days at 0-2°C and 85-90% relative humidity.

➤ **Washing**

Select mature, firm, and fibreless aonla fruits and washed in cold water to remove the impurity dirt and other foreign particles from the fruits, the fruits and vegetable washer machine are used for efficient washing of fruit.

➤ **Deseeding and segmentation**

Properly washed fruits are then taken to seed separation machine for deseeding and segmentation of fruit. It helps to separate the seed material from the fruit segment.

➤ **Pulping**

Extraction of aonla pulp from aonla fruits is necessary for the processing of aonla juice. The pulp is extracted by the addition of water equal to the weight of segments and passing through the pulping machine. The pulp of aonla is filtered after for further processing.

➤ **Pasteurization**

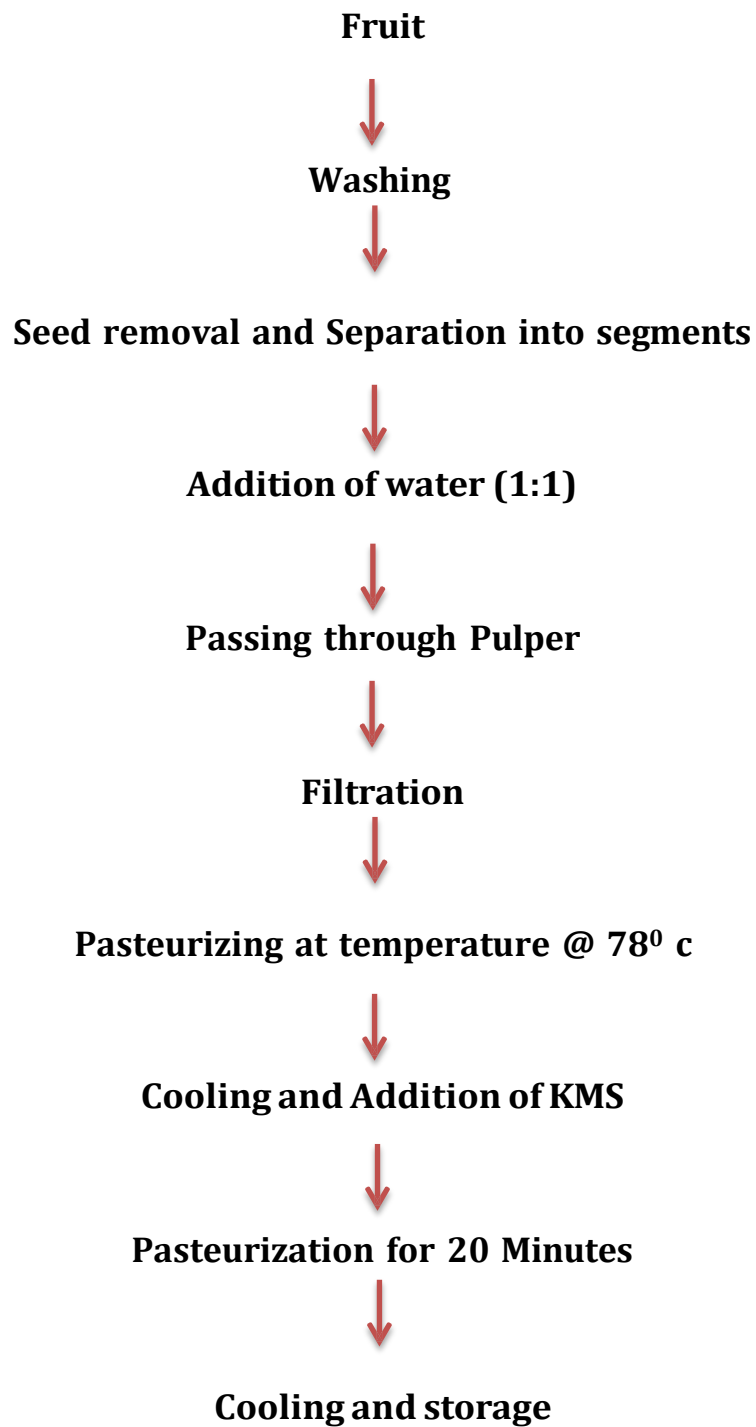
Now the Fruit Pulp is first pasteurized at 78⁰ C for 15-20 minutes. After pasteurization the fruit juice are taken to cooling section where addition of potassium Meta bi sulphide are added as preservatives.

➤ **Filling and storage**

The juice is then filled in sterilized bottles and after capping the bottle is sterilize for 20 minutes and stored in a cool and dry place.



Flow Chart of Aonla juice processing



2.3. Equipment involved

- **Fruit & Vegetable Washer:** Fruit washer machine is mainly used in washing fruits or vegetables; it is essential equipment on the fruit and vegetable juice processing line. Fruit washer machine is also widely used in the processing of varied fruit products.



- **Aonla deseeding machine:** This machine is used for remove the seed and segment separation of fruit.



- **Aonla juice extractor machine:** Machine is widely used for extracting the juice from Aonla in an efficient and hygienic manner.



- **Heating Vessel with stirrer:** These vessels are used for heating the juice and reduce the viscosity of high viscous fluids.



- **Juice filtration machine:** The juice filter machine is equipment used in liquid/solid separation. Specifically, the filter press separates the liquids and solids using pressure filtration.



- **Chiller machine:** Chiller is a refrigeration system used to lower the temperature of fluids by removing heat from them.
- **Mixer vessels:** Mixer vessels with agitator. It is widely used in the Food Processing industry to mixing the ingredients in fluids homogeneously.



- **Bottle filling machine:** This machine are used to fill products that require to be packaged in bottles



- **Stainless Steel Bottle Shrink Wrapping Machine:** It is used to shrink pack goods, such as cans, glass bottles, fruit juices etc.



2.4. PROJECT COMPONENTS

Land

The required land for Aonla juice Processing is estimated to be around 4000 Sqft.

Civil Work

- **Workshop Area-** This area includes the space for processing, cleaning, sorting and, processing, packaging processes. Total workshop area is approx. 1500 Sqft.
- **Inventory Area-** This area includes the storage space for all the raw materials and storage space and finished goods. Total inventory area is approx. 1500 Sqft.
- **Office Area –** This space includes staff working region. Total workshop area is approx. 500, Sqft. (Land and building requirement may vary depending on the size of project)
- Area for canteen, parking and labour accommodation are required 500 sqft .

Misc. Assets

- Water Supply Arrangements
- Furniture
- Computer and Stationary

2.5. Power Requirement

With semi-automatic machines and equipment with manual handling, the Power Required is about: 12-15 kW, to operate this plant. (It is also depend on Project size and machines specification)

2.6. Manpower Requirement

Men and women both are involved in this. For a small unit to begin with around 15 people can work.

2.7. LICENSE & APPROVALS

- GST Registration
- Udyog Aadhar Registration (Optional)
- FSSAI Registration

Chapter -3

PACKAGING OF AONLA JUICE

3.1. PACKAGING OF AONLA JUICE

The packaging of beverages is a complex technological branch in the Food Processing Packaging industry. The traditional returnable glass bottle has given way to newer plastic containers as well as cartons. The current trend is to improve the conventional containers, extend their share in the large market, extend the shelf-life of the products, provide greater consumer convenience, and ultimately to produce economic packages.

3.2. The packaging requirements for all types of beverages are:

- Absolutely leak-proof and prevent contamination
- Protect the contents against chemical deterioration
- No pick up of external flavors
- Be hygienic and safe
- Retain carbonation in the case of carbonated beverages
- Economical, easy to use and dispose
- Good aesthetic appearance

3.3. Selection of Packaging Material

Factors to consider include damage, fines, contamination, oxidation, and other things. In the selection of packaging materials for fruit juice packaging the following need to be considered:

3.3.1. Water Vapor Transmission Rate (WVTR)

Knowledge of WVTR of packaging materials shows considerable effect. However, thermoplastic materials are not much affected.

3.3.2. Gas Transmission Rate

Gas Transmission Rate Permeability to gases like oxygen decides the shelf-life of oxygen-sensitive items. As the aonla juice is very sensitive to oxidation.

Besides OTR, permeability to volatiles and flavours is important in fruit Juices. Polyolefin has high values, whereas plastics such as polyester, nylons, ethylene vinyl alcohol (EVOH)

have good barrier properties for transmission of volatiles. The odor permeability's of some materials.

Odour Transmission of Packaging Materials

Packaging Material	Thickness (μ)	Days to Aroma Leakage			
		Vanillin	Menthol	Piperonal	Camphor
BOPP / PE	17/50	6	2	1	13
PET / PE	12/50	2	16	5	< 30
PET / EVOH	12/15	< 30	< 30	30	< 30
OPP / EVOH / PE	18/15/50	30	< 30	27	< 30
PET / EVOH / PE	12/15/50	15	25	27	< 30

3.3.3. Heat Seal Strength

The performance of a finished package is determined by the effectiveness of the package seal i.e. the permeability to water vapour, gases and volatiles increase if the seal is not perfect. Thermoplastic films such as polyethylene give excellent heat seals.

3.3.4. Performance Properties

Apart from the above-mentioned important properties, a material has to perform well on machines; therefore knowledge of physical properties like slip, stiffness, blocking resistance is also necessary. Twist retention for twist wrap is also of importance. The initial function of packaging is to protect.

3.4. Frequently-used plastic-based packaging materials for aonla juice packaging

A very high quantum of polymeric materials, besides cellulosic and aluminium foil, are used for packaging items. The most common choice of packaging medium is plastic (generally flexible) as it provides the required protection and preservation, grease resistance, physical strength, machinability, and printability. Plastics being lighter in weight are, therefore, the most preferred material for the packaging of juices. There are many changing trends in the packaging of beverages. Plastic-based packaging materials that can be used for beverages are listed below.

3.4.1. Polyethylene (PE)

It is considered to be the backbone of packaging films. Since one of the greatest threats to the quality of any product comes from moisture, polyethylene with its low water vapour transmission is of definite interest. Polyethylene films are fairly free of plasticizers and other additives and are quite extensively used as a part of lamination. Its ability to heat seal increases its value.

Low-Density Polyethylene (LDPE) is an economical material with low WVTR, however, it has a high permeability to flavors/volatiles, poor grease resistance, and are limp. High-density polyethylene (HDPE) is stiffer, more translucent, and has better barrier properties but needs a higher temperature for sealing.

Later additions include high molecular weight high-density polyethylene (HM HDPE) and linear low-density polyethylene (LLDPE). HM HDPE is a paper-like film with high physical strength and barrier properties but is less transparent than ordinary polyethylene. HM HDPE is available in twist-wrap grades. Polyethylene films are also suitable for making tetra packs etc. A copolymer of polyethylene and polyvinyl alcohol and EVOH has outstanding gas barrier properties especially when dry.

3.4.2. Polypropylene

Polypropylene films have better clarity than polyethylene and enjoy superior machinability due to stiffness. Lack of good salability has been a problem; however, PVDC and vinyl coating have been used to overcome this problem. . Paralyzed polypropylene with an opal finish and attractive gloss is also used. Both as laminates and overwraps, PP film is now widely used for all types of packaging applications.

3.4.3. Poly Vinyl Chloride (PVC)

PVC is a stiff and clear film having a low gas transmission rate. PVC can be used as small wraps, bags, and pouches. PVC when co-polymerized with polyvinylidene chloride is known as Saran. Since it is a costly material, it is only used as a coating to obtain barrier properties and heat salability. PVC film is also used for twist wraps, as it has twist retention properties and is excellent on high-speed machines.

Polyesters (PET) and Polyamide (PA)

- 3.4.4.** Polyethylene terephthalate film has high tensile strength, gloss, and stiffness as well as puncture resistance. It has moderate WVTR but is a good barrier to volatiles and gases. To provide heat seal property, PET is normally laminated to other substrates. Nylons or polyamides are similar to PET but have high WVTR.

Metallised Films

When polymeric films are metalized there is an improvement in their barrier properties. Metallization is also used for decorative purposes and aesthetics. The films, which are used for metallization, are PVC, PET, PP, and polyamides. To safeguard the interest of the consumer the Standards of Weights & Measures (Packaged Commodities) Rules, have imposed a limit on the weight of the wrapper.

3.5. Types of Packaging for Aonla juice

3.5.1. Glass

The use of glass bottles for the packaging of fruit beverages was widespread although the hot-fill/hold/cool process had to be applied with care to avoid breakage of the containers. Glass is still the preferred packaging medium for high-quality of aonla juice . However, over recent years, an increasing proportion is being packed aseptically, into cartons.

The improvements that have occurred in glass bottle packaging are:

- Lightweight
- Surface coating to increase abrasion resistance
- Use of wide-mouth containers fitted with easy-open-caps

3.5.2. Plastic Containers:

Aonla juice is the processed product of aonla fruit, to achieve extended shelf-life, PET bottles are usually used for filling applications. Special features are added to the containers through the design and manufacturing process. The package is heat-set in order to improve the temperature resistance of the containers. PET resins with a higher Tg (glass transition) temperature and/or a faster rate of crystallization are used. the plastic container is the more frequent packaging materials that are used in fruit beverage industry.

3.5.3. Aseptic Packages:

Packed in aseptic packages provide excellent protection for beverages. These aseptic packages are made by combining thermoplastic with paperboard and aluminum foil. Their multi-layered construction enables the carton to protect the contents from various factors responsible for spoilage. The aluminum foil layer is a strong barrier for O₂ and light. The inner plastic layer made of polyethylene makes it possible to seal through the liquid. The outer paper layer provides stiffness making it possible for the cartons in a brick shape, thus, enabling maximum utilization of available storage and transportation space. Excellent graphics are possible leading to good display and shelf appeal and also providing information regarding the product. The aseptic process makes the product bacteria-free before being packaged.

3.6. Future Trends in packaging industry

It is projected that the global production of packaging materials will reach 180 million tons per year, with demand for more creative and advanced packaging materials growing annually. By 2018, the global packaging industry is forecast to increase to US\$975 billion and rise at a 4 percent annual rate. Asia alone has the capacity to make up more than 40 percent of global demand. Flexible packaging is currently rising by 4 percent to more than 16 million tons, with a volume in excess of US\$50 billion. Many students and entrepreneurs have been drawn to this area of research by such tremendous development seen in the world economy. The well-being of the packaging industry is closely related to the economy of the world. The greater the success of the packaging industry, the greater the positive change of the world's economy.

The driving force responsible for the packaging industry growth.

- The aging of the population worldwide
- The movement towards smaller families
- The growing customer demand for convenience
- Growing awareness of health among consumers
- The trend of increasingly poor customers towards 'on-the-go' lifestyles
- Growing brand improvement/differentiation criteria in an increasingly competitive world
- Creation of new packaging materials

- Rising numbers of Nuclear Families
- Growing environmental consciousness and the introduction of new legislative standards for the recycling of packaging.

CHAPTAR - 4
FOOD SAFETY REGULATIONS AND STANDARDS OF PROCESSED
AONLA JUICE

“2.3:” FRUIT & VEGETABLE PRODUCTS

“2.3.6:” THERMALLY PROCESSED FRUITS JUICE

4.1. Food Standards

Thermally Processed Fruits Juices (Canned, Bottled, Flexible And/or Aseptically Packed) means the unfermented but fermentable product, pulpy, turbid or clear, intended for direct consumption obtained by a mechanical process from sound, ripe fruit or the flesh thereof and processed by heat, in an appropriate manner, before or after being sealed in a container, so as to prevent spoilage. The juice may have been concentrated and later reconstituted with water suitable for the purpose of maintaining the essential composition and quality factors of the juice. It may contain salt. One or more of the nutritive sweeteners may be added in amounts not exceeding 50 g/kg but not exceeding 200g/kg in very acidic fruits except in case of Apple Juice, Orange Juice (reconstituted from concentrate), Grape Juice, Pineapple Juice (reconstituted from concentrate). The product is not required to be called sweetened juice till the added nutritive sweeteners are not in excess of 15g/kg.

The product may contain food additives permitted by FSSAI. The product shall conform to the microbiological requirements given in

Name of products	Parameters	Limits
Thermally processed fruits and vegetable products	a) Total plate count b) Incubation at 37°C for 10 days and 55°C for 7 days	a) Not more than 50 / ml b) No changes in pH

The product shall meet the following requirements also

Product	TSS Min(%)	Acidity expressed as Citric Acid Max.(%)
Other fruit juices of single species or combination thereof - not very acidic	10	3.5
Other fruit juices of single species or combination thereof - very acidic	10	3.5

4.2. SANITARY AND HYGIENIC REQUIREMENTS FOR FOOD MANUFACTURER/ PROCESSOR/HANDLER

The place where food is manufactured, processed or handled shall comply with the following requirements:

1. The premises shall be located in a sanitary place and free from filthy surroundings and shall maintain overall hygienic environment. All new units shall set up away from environmentally polluted areas.
2. The premises to conduct food business for manufacturing should have adequate space for manufacturing and storage to maintain overall hygienic environment.
3. The premises shall be clean, adequately lighted and ventilated and sufficient free space for movement.
4. Floors, Ceilings and walls must be maintained in a sound condition. They should be smooth and easy to clean with no flaking paint or plaster.
5. The floor and skirted walls shall be washed as per requirement with an effective disinfectant the premises shall be kept free from all insects. No spraying shall be done during the conduct of business, but instead fly swats/ flaps should be used to kill spray flies getting into the premises. Windows, doors and other openings shall be fitted with net or screen, as appropriate to make the premise insect free The water used in the manufacturing shall be potable and if required chemical and bacteriological examination of the water shall be done at regular intervals at any recognized laboratory.
6. Continuous supply of potable water shall be ensured in the premises. In case of intermittent water supply, adequate storage arrangement for water used in food or washing shall be made.
7. Equipment and machinery when employed shall be of such design which will permit easy cleaning. Arrangements for cleaning of containers, tables, working parts of machinery, etc. shall be provided.
8. No vessel, container or other equipment, the use of which is likely to cause metallic contamination injurious to health shall be employed in the preparation, packing or storage of food. (Copper or brass vessels shall have proper lining).

9. All Equipments shall be kept clean, washed, dried and stacked at the close of business to ensure freedom from growth of mould/ fungi and infestation.
10. All Equipments shall be placed well away from the walls to allow proper inspection.
11. There should be efficient drainage system and there shall be adequate provisions for disposal of refuse.
12. The workers working in processing and preparation shall use clean aprons, hand gloves, and head wears.
13. Persons suffering from infectious diseases shall not be permitted to work. Any cuts or wounds shall remain covered at all time and the person should not be allowed to come in direct contact with food.
14. All food handlers shall keep their finger nails trimmed, clean and wash their hands with soap, or detergent and water before commencing work and every time after using toilet. Scratching of body parts, hair shall be avoided during food handling processes.
15. All food handlers should avoid wearing, false nails or other items or loose jewellery that might fall into food and also avoid touching their face or hair.
16. Eating, chewing, smoking, spitting and nose blowing shall be prohibited within the premises especially while handling food.
17. All articles that are stored or are intended for sale shall be fit for consumption and have proper cover to avoid contamination.
18. The vehicles used to transport foods must be maintained in good repair and kept clean.
19. Foods while in transport in packaged form or in containers shall maintain the required temperature.
20. Insecticides / disinfectants shall be kept and stored separately and away from food manufacturing / storing/ handling areas.

4.3. Labeling Standards

Labelling requirements for packaged food products as laid down in the Part VII of the Prevention of Food Adulteration (PFA) Rules, 1955, and the Standards of Weights and Measures (Packaged Commodities) Rules of 1977, require that the labels contain the following information:

1. Name, trade name or description
2. Name of ingredients used in the product in descending order of their composition by weight or volume
3. Name and complete address of manufacturer/packer, importer, country of origin of the imported food (if the food article is manufactured outside India, but packed in India)
4. Nutritional Information
5. Information Relating to Food Additives, Colors and Flavors
6. Instructions for Use
7. Veg or Non-Veg Symbol
8. Net weight, number or volume of contents
9. Distinctive batch, lot or code number
10. Month and year of manufacture and packaging
11. Month and year by which the product is best consumed
12. Maximum retail price

4.3.1 Wherever applicable, the product label also must contains the following

The purpose of irradiation and license number in case of irradiated food. Extraneous addition of colouring material. Non-vegetarian food – any food which contains whole or part of any animal including birds, fresh water or marine animals, eggs or product of any animal origin as an ingredient, not including milk or milk products – must have a symbol of a brown colour-filled circle inside a brown square outline prominently displayed on the package, contrasting against the background on the display label in close proximity to the name or brand name of the food.

Vegetarian food must have a similar symbol of green color-filled circle inside a square with a green outline prominently displayed.

All declarations may be: Printed in English or Hindi on a label securely affixed to the package, or Made on an additional wrapper containing the imported package, or Printed on the package

itself, or May be made on a card or tape affixed firmly to the package and bearing the required information prior to customs clearance.

Exporters should review the Chapter 2 of the “FSS (Packaging and Labeling) Regulation 2011” and the Compendium of Food Safety and Standards (Packaging and Labeling) Regulation before designing labels for products to be exported to India. FSSAI revised the labeling Regulation and a draft notification to that effect was published on April 11, 2018, inviting comments from WTO member countries and the comments received are under review and the publication date remains unknown.

According to the FSS Packaging and Labeling Regulation 2011, “prepackaged” or “pre packed food” including multi-piece packages, should carry mandatory information on the label.



Contact Us

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