

Post harvest handling and marketing of Jamun (*Syzygium cuminii*) in Sindhudurg District of Maharashtra state

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ABSTRACT

The present marketing system of Jamun in study area is imperfect in nature. Few market intermediaries dominated the market and producer-sellers have less control in fixing the price of their produce. Due to improper grading and standardization of Jamun fruits, absence of sufficient market information, etc., it is a need of the hour that growers and others who are engaged in harvest and post harvest handling and marketing of Jamun in Sindhudurg district to commit themselves whole heartedly to adopt proper harvest and post harvest practices. Adoption of proper methods and practices right from harvesting to final marketing would help in maintaining quality of fruit desired by consumers which can fetch the grower better prices and high profit.

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The Jamun (*Syzygium cuminii*) a member of Myrtaceae family is an important indigenous minor fruit of commercial as well as medicinal value. Indian black berry, Black plum, Java plum, Jambul, Jamun, Jam, Kalajam, Phalani, Pharendra, are synonyms for Jamun (Singh, 1997).

The Jamun fruits have different uses. The tasty and pleasantly flavoured Jamun fruit is mostly used for dessert purposes and it is very much liked by the people. The fruit is usually shaken with salt before eating. The Jamun fruit has sub acid spicy flavour. Apart from eating a fresh, it can also be used for making delicious beverages, jellies, jam, squash, wine, vinegar and pickles. Jamun squash is a very refreshing drink in the summer season. A little quantity of fruit syrup is much useful for curing diarrhoea. A mixture of Jamun juice and mango juice in equal quantity is very much good for quenching thirst for diabetic patient. Jamun fruit is used for preparation of wine, particularly in Goa. The vinegar prepared from juice extracted from slightly unripened fruit is stomachic, carminative and diuretic apart from having cooling and digestive properties. Small Jamun fruits not suitable for table use, are suitable for use in the beverage industry as they contain a high amount of acidity, tannins and anthocyanins. The oil composition

of Jamun has also been reported (Bose, 1985).

Information regarding the area and production of this fruit in India and in Maharashtra is not available. However, this fruit tree is seen almost in all parts of Maharashtra. In Konkan region also, the trees of Jamun are found on road side, on field boundaries and in forest in all the districts. Jamun is an important minor fruit crop in Sindhudurg district. However, very meagre information is available regarding statistics of area and production of this crop.

In Sindhudurg district, as per the recent statistics available with Agricultural Department of Sindhudurg-Zilha Parishad, 0.30 ha area is under Jamun trees. As per the estimates of Public Works Department of Sindhudurg District in Sindhudurg there were about 32000 trees along the Mumbai-Goa National Highway (NH-17).

In spite of lot of potential of Jamun, limited research work has been carried out regarding this crop. Jamun fruit crop has no developed varieties; however local types at several places are superior and variable. Dr. Balasaheb Sawant Konkan Krishi Vidyapeeth, Dapoli has evolved a variety of Jamun named as "Konkan Bahadoli". This variety is suitable for Konkan and other tropical regions of Maharashtra. The fruit of this variety bears big size, bold shape, has high pulp percentage and having longer shelf-life. The average yield of this variety is 125-150 kg/tree.

Jamun is highly perishable. As per an estimate 20-30 per cent of Jamun is lost in harvest and post harvest

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phases. If proper care is taken from harvesting to final marketing to the consumers, considerable amount of losses can be reduced and better quality fruits can reach to the consumer which can help the producer to get remunerative prices.

Hence, it was felt that a systematic study of present harvest, post harvest and marketing practices would be useful in identifying the most critical problem and steps necessary for their improvement. This study was conducted in growing area of Sindhudurg district and in APMC Mumbai Byculla market with the specific objectives as to study systematically the existing harvest and marketing practices of Jamun in Sindhudurg district and identify the most critical problem associated with it and to suggest the possible steps for improvement of the present system.

Harvest and post harvest practices:

Maturity:

Maturity is the stage at which fruit has completed its growth and development. Jamun is climacteric fruit. It ripens on the tree itself. Jamun turns dark black in colour and pulp becomes dark purple in colour. One or two day after ripening, the fruits get dry and drop on the ground.

Harvesting:

Harvest refers to the action of separating foodstuff from its growth medium. All operations succeeding harvest is defined as post-harvest operations. Jamun fruits are harvested by climbing on the tree in the morning time only. Sometime growers used the bamboo stick, nylon netting is fastened to the ring to make it basket. Fruit is detached by placing the ring behind it and pulling it sharply to snap the pedicle, fruit drops in the net and is emptied when the basket is filled. Jamun fruits are in bunches, while applying jerk to the bunch most of the fruits drop down on the ground which cause injury and outright loss of produce. Near about 5-10 per cent fruits get damaged due to this method of harvesting; also fruits harvested are without pedicel.

Sorting and grading:

Sorting and grading is done manually by visual inspection into bold size fruits and small size fruits. The fruits without pedicel are ignored and added into the graded fruits.

Packaging for transportation to market:

Growers bring the fruits to the assembling centre in a tough bamboo basket. No proper packaging is used for transportation of fruits from farm to the assembling

centre. Mostly bamboo baskets are used as a container having capacity of 25-30 kg per basket. Dry leaves and green leaves are used as a packaging material. Gunny bags are also used for packaging.

Such type of packaging do not protect the fruits sufficiently against transit and handling abuse. Also build up of internal heat of produce due to poor ventilation and also bruising to the produce due to rough surface. Damages is also observed during loading and unloading of the produce.

Transportation:

The most commonly available and used carrier to transport harvested fruits from farm to nearby assembling centre is a jeep or bullock cart or head load. Alternatively luxury buses and tempos are used for transportation of fruits to Mumbai, Pune, Kolhapur markets.

During the course of journey, produce encounters numerous road discontinuities such as pat hole, bumps, rail track, poor packaging, poor suspension system in transport vehicle, lack of provision for removal of respiration heat, high static load on lowermost package, which result in fruit damage. Further, improper loading and unloading practices contribute sizable proportion of damage. This results into poor quality fruits. Transport damage is directly co-related to transport distance. Destination being at longer distance more would be the damage to the produce.

Marketing:

Marketing plays a key role in post harvest operation of fruits. The existing fruit trade is characterized by high transportation, grading and packing cost, malpractices by way of multiplicity of market charges, unauthorized deduction, lack of storage facilities etc. The objectionable feature of the system is the existence of long chain of middlemen which reduces the share of Jamun growers in the price paid by the consumers. The producers are scattered over the wider areas. There is lack of any collective organization among the producers, while fruit merchants, commission agents and retailers are well organized. In case of fruit crop, some producers sell their trees on contract basis at low prices even when trees are in blossom. A perfect and efficient marketing system covers all aspects of handling, from the stage of harvesting till the commodity reaches to the consumers. Due to lower marketing efficiency, the grower gets less returns and consumer pays more than necessary. In order to overcome these problems, there is need for alternative marketing channels for marketing of these fruits.

It was observed that in the movement of Jamun fruits

from Jamun growers to ultimate consumer, the village traders, pre-harvest contractors, commission agents/wholesalers, retailers/ hawkers were involved as intermediaries. With these intermediaries, the commodity passes through four different channels as presented below.

Channel-I:

Producer → Pre-harvest contractor → Commission agent/Wholesaler → Retailer / Hawker → Consumer

Channel-II:

Producer → Village trader → Commission agent/Wholesaler → Retailer/Hawker → Consumer

Channel-III:

Producer → Commission agent/Wholesaler → Retailer/Hawker → Consumer

Channel-IV:

Producer → Pre-harvest contractor → Village trader → Commission agent/Wholesaler → Retailer/Hawker → Consumer.

APMC Mumbai (Byculla market):

The trading of Jamun fruits was done in APMC Mumbai Byculla market. Jamun fruits start coming from March to the end of the May. The peak arrival is the month of April. Village traders consign the produce to the commission agents in the market. These commission agents sell it to the buyer on the behalf of them. Selling is open auction type. Prices are decided as per the variety, quality of fruits, quantity arrived to the market. Prices of the Jamun fruits are usually high in the beginning of the season and settles when there is peak arrival of the produce. Commission agents take the commission for the produce they traded. Commission rate is 10 per cent.

Retailers come to the market in morning hours. They sort out the fruits, remove the damaged fruits, wash the fruits to make them shine and take them away to their stores. Retailers are generally the regular shop owner or hawkers.

Quality:

Quality is defined as the composite of those parameters that differentiate individual items of produce and have significance in determining the degree of acceptability of the item. Jamun fruits are climacteric in nature therefore the quality of fruits goes to declining from farm to market, if the fruits reaches late to the market, its quality declines also the visually observable defect is also increased, therefore it fetches less price.

Consumers use different criteria to judge quality of Jamun fruits. Consumers are often seek to check colour, size, shape, firmness to tough, cleanliness, freshness, absence of injury or any other visually observable defects. In addition to these attributes, consumers often check fruit aroma or taste the fruit.

Problems observed with the present system:

Poor harvest and post harvest practices and handling procedures at the farm and beyond it contributes to poor quality and reduced prices of Jamun reaching the market.

During harvesting of fruits, the considerable loss happens. The Jamun tree branches are very weak, therefore sometimes harvesting causes physical injury to the harvester.

As the Jamun fruits are perishable and delicate in nature, injury is also faced during the transportation and loading and unloading.

Lack of storage facility, poor distribution, planning and coordination between growers and commission agent in the market contribute to the loss and poor quality of the fruits reaching the market. These all factors result into getting lower prices to the grower for his high valued produce.

For growers, to get benefit and efficient marketing, all stages from harvesting to retails sale require planning and coordination in a time schedule, besides adoption of proper harvest and post harvest handling procedures.

Suggestions :

Based on the findings of the present study and general observations of the investigator, during the data collection, following some suggestions are most useful for planning, execution and improvement in marketing of Jamun.

Due to delicate, softness of the skin of Jamun fruit, harvesting is very difficult. Therefore, it is essential to design and develop a suitable device for harvesting of Jamun fruits to protect this character.

After harvest, harvested fruits should not be left in direct sunlight, places of infection, wind or rain, either in field or during transport from field to the packing facility or even in the market. Suitable and properly disinfected collection container should be used. Sources of contamination such as workers hygiene should be strictly followed, decayed produce should be safely disposed off and should not mix with the healthy produce.

Sorting should be done by inspecting fruits thoroughly and carefully. Immature, bird eaten, sunburn, bruised, scarred, insect, pest infested and mechanically injured fruits should be removed. Loose fruits (fruits without

pedicel) and fruits dropped while harvesting should be taken out and may be marketed separately.

In the study area eye visual grading is done, only two grades are prepared, bold and small sized but efforts should be taken to specialized these grades scientifically. Grading could fetch the grower higher prices and profits. Various attributes of the produce such as size, colour, texture and weight are taken into accounting in grading. It gives the customer several options that range in price and usage. Fruits should be graded according to the attributes desired by the end users.

The Jamun fruits are perishable in nature and it takes 10-12 hrs to reach the market therefore proper storage facility in the production area as well as in the market is needed. Such kind of storage facilities can be built on cooperative basis. (As this Jamun fruit is minor, the storage and transportation function should be linked with the major fruits crop like mango in the Sindhudurg district).

Increase in defects in transit as a result of poor packaging, which does not protect the produce against mechanical hazards. Improved packaging system consisting of corrugated fibre box or containers with rigid wall with provision for aeration will be needed. The ultimate packaging system must lead to easier handling of the produce, a better quality and better marketable product. Packaging must protect produce against rough handling, during loading, unloading, transport, pressure etc. It must facilitate aeration through ventilation holes and communicate the produce identification label such as standard units (weight, count and volume), type or variety. It should also advertise and market the produce with recognizable trade name and trade mark. Such packaging would not only protect the produce from environmental, mechanical hazards and preserve quality but also help in advertising and marketing the produce.

Transportation is another weak link in post harvest handling of Jamun fruits. Since the fruits come from village, large proportion of the production is transported by road only. Poor quality rural roads create damage. It is suggested that the vehicle should not be overloaded. Efforts should be done to establish suitably designed refrigerated transport vehicles with properly insulated containers for transporting horticultural produce. Ways and means to be explored for providing cheap and and

efficient transport facility.

The shelf-life of Jamun fruit is very short therefore fruits get deteriorated early. To arrest this loss, establishment of processing unit of the fruits in the area is suggested. As this fruit crop has different medicinal uses various products like Jamun powder, Jamun squash, Jamun syrup, Jamun pulp can be prepared.

There is tremendous exploitation of Jamun growers in the existing marketing system as indicated by very meagre producer's share in consumer rupee. In order to improve this existing situation of marketing of Jamun in the study area, the organization of institutional agencies like growers co-operation is necessary. This institutional body should undertake all the marketing functions starting from assembling of produce to grading, packing, transport and marketing of produce. The SHGs have good scope to enter in this business.

At present a long chain of market functionaries reduces the producer's share in consumer's price. To improve this situation, market infrastructure on cooperative line for benefits of the fruit growers is needed.

The Jamun fruits have tremendous medicinal value, therefore research and extension programmes be outlined for increasing area under Jamun.

Conclusion:

On the whole it can be concluded that, the present marketing system of Jamun in study area is imperfect in nature. Few market intermediaries dominated the market and Producer-sellers have less control in fixing the price of their produce. Due to improper grading and standardization of Jamun fruits, absence of sufficient market information, etc. Producer-sellers often exploited by the traders, which reduces the producer's share in consumer price. Therefore it is a need of the hour that growers and others who are engaged in harvest and post harvest handling and marketing of Jamun in Sindhudurg district to commit themselves whole heartedly to adopt proper harvest and post harvest practices. Adoption of proper methods and practices right from harvesting to final marketing would help in maintaining quality of fruit desired by consumers which can fetch the grower better prices and high profit.

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