

Minimal Processing in Pomegranate

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SUMMARY

Minimal Processing (MP) helps to maintain shelf life of produce by quality retention and reduction in microbial spoilage. Therefore, minimal processing in Pomegranate creates great opportunity in income generation in rural areas. In addition to this, it fetches higher market returns for the commodity.

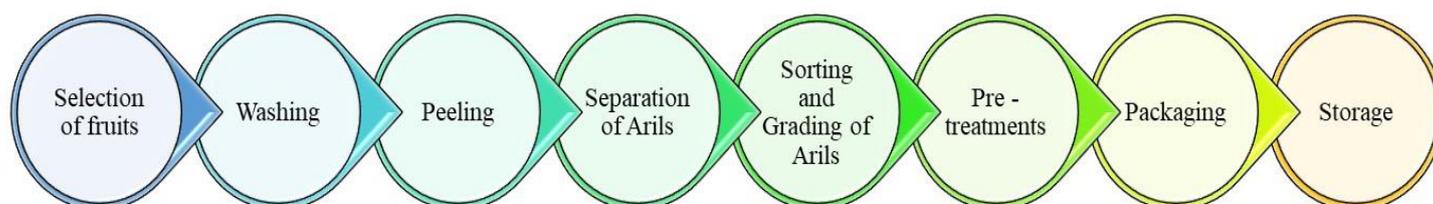
INTRODUCTION

Pomegranate (*Punica granatum* L.) it is one of the most favourite and important fruit crop in India. It is being cultivated on a larger scale in country due its wider adaptability and high profitability. It belongs to the family *Punicaceae*, originated from Iran. The main use of pomegranate is table purpose; now a days there has been an increase in demand for minimally-processed products such as juices, alcoholic drinks, jams, dehydrated seeds, nutritional fibre, dry rind for making teas, and extracts from its different parts (Melgarejo-Sanchez *et al.* 2021). Pomegranate consists of good amount of organic acids, soluble solids, anthocyanins, vitamin C, fatty acids and mineral element and has significant antimicrobial effects. Hence, it can be considered as super fruit of next generation (Dhinesh and Ramasamy, 2016). Arils aid about 52% of the total fruit (w/w), comprising 78% juice and 22% seeds (Barman *et al.* 2014) Fruits are processed into fresh juice, RTS, *Anardana*, or wine and also for flavouring and colouring beverage products (Mousavinejad *et al.* 2009). Now a days minimal processing in pomegranate fetching more attention due to convenience, health benefits and high value returns (Zehra and Okan 2009). Minimally processed arils serve as a suitable option for households, retail, cuisine, and food services. Minimal processing operations increases the shelf life by reducing the bacterial contamination and also reduce the moisture loss from the pomegranate arils. The minimally processed pomegranate arils and frozen arils packed in punnets as well as juice are the most appealing products to consumers as compared to whole fruit.

What is minimal processing?

In minimal processing, mild heat treatment and preservation of food items are done using various methods that cause least changes while processing. The minimal processing contains washing with sanitizing agents to reduce the primary source of inoculums load, pH modification, use of antioxidant agents, temperature control and others, to control partially the high perishability of the fruits (Sepulveda *et al.* 2000). Minimally processed foods are belonging to “ready-to-eat” category. There are some common terms used for minimal processing are “Lightly processed”, “Partially processed”, “Ready to eat” or “Ready to Cook”. Most of the studies on pomegranate deals with physical and chemical changes during ripening of whole fruit and the determination of shelf life at different storage condition (Ayhan, Z. and Eştürk, O. 2009).

Schematic representation of Minimal Processing



Packaging plays an important role in managing the nutritional and microbial quality of fresh or fresh cut produce. Packaging protects the food products, serves as an substitute for controlling diseases and provides structural support for convenient storage. Significant role is extending shelf life of food products and reduce the risk of food borne pathogens (Gil *et al.* 2000) reported the antioxidant activity of pomegranate juice to be three

times that of green tea or wine. Pomegranate shows great scope for the processing into value added products having increased shelf life. The new segment of pomegranate processing allows the use of the fruits with low quality fruits that cannot be marketed, for the preparation of the new products.

Minimally Processed products of Pomegranate

- Processed arils
- Juice
- Squash
- Beverages
- Juice Concentrates
- Frozen Seeds
- Jam (*Anar rub*)
- Jelly
- *Anardana*
- Wine
- Seed Oil
- Rind Powder

Advantages of Minimal Processing over Conventional Processing

- Helps to retain nutritional value
- Food tastes fresh
- Causes no change in appearance
- Helps in prevention of microbial spoilage

CONCLUSION

Minimal Processing greatly reduce the chance of post-harvest deterioration of quality of product. MP fetches higher price in market hence such practices proved to be beneficial for growers as well as industrialists. From this it may conclude that there will be a vast scope for the applied research need to be done in this aspect.

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