

Value Addition of Berries and Cherries

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ABSTRACT

A variety of berries and cherry fruits can be grown in this country due to the variable climatic conditions. These fruits are plentiful and available throughout the year. These fruits are also known for their therapeutic and nutritive value and can satisfy the demands of health-conscious consumers. However, some of these cherry fruits are not acceptable in the market in fresh form due to their acidic nature and astringent taste. There is always demand from consumers for new, delicious, nutritious, and attractive food products which can be satisfied by value-added products from berries and cherries. Therefore, research efforts to diversify and popularise these underutilized berry and cherry fruit crops must be prioritized. In order to do this, it is necessary to increase the demand for these fruit crops on both domestic and international markets, promote their exportation, and improve their nutritional and socioeconomic status.

Keywords: Consumer demand, Nutritious, Diversification, Export and Socio-economic status

I. INTRODUCTION

The world's most valuable plants thrive in India's agroecological zones and altitudes. The fluctuating weather conditions of this country provide a suitable environment for growing different kinds of berries and Cherries. There is a need for different Cherry and Berries Species that have the potential for commercial exploitation are yet to be utilized to their potential. This, to some extent, can be achieved through developing suitable processing for these underutilized fruits.

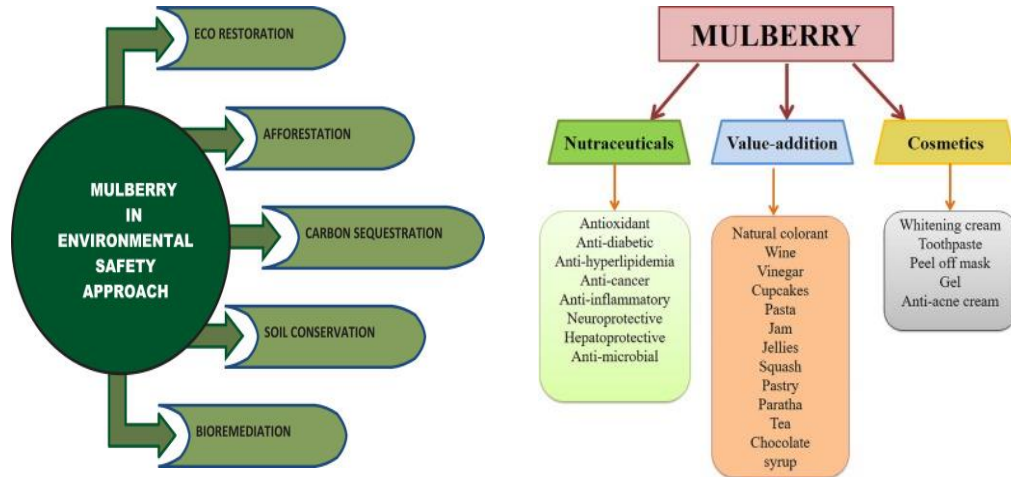
Berries and Cherries are known for their rich flavour, vibrant colours and potential health benefits. Value addition of berries and Cherries involves transforming them into various products or enhancing their qualities to increase their market value.

II. Glimpse of Value Addition of Berries:

A. Mulberry:

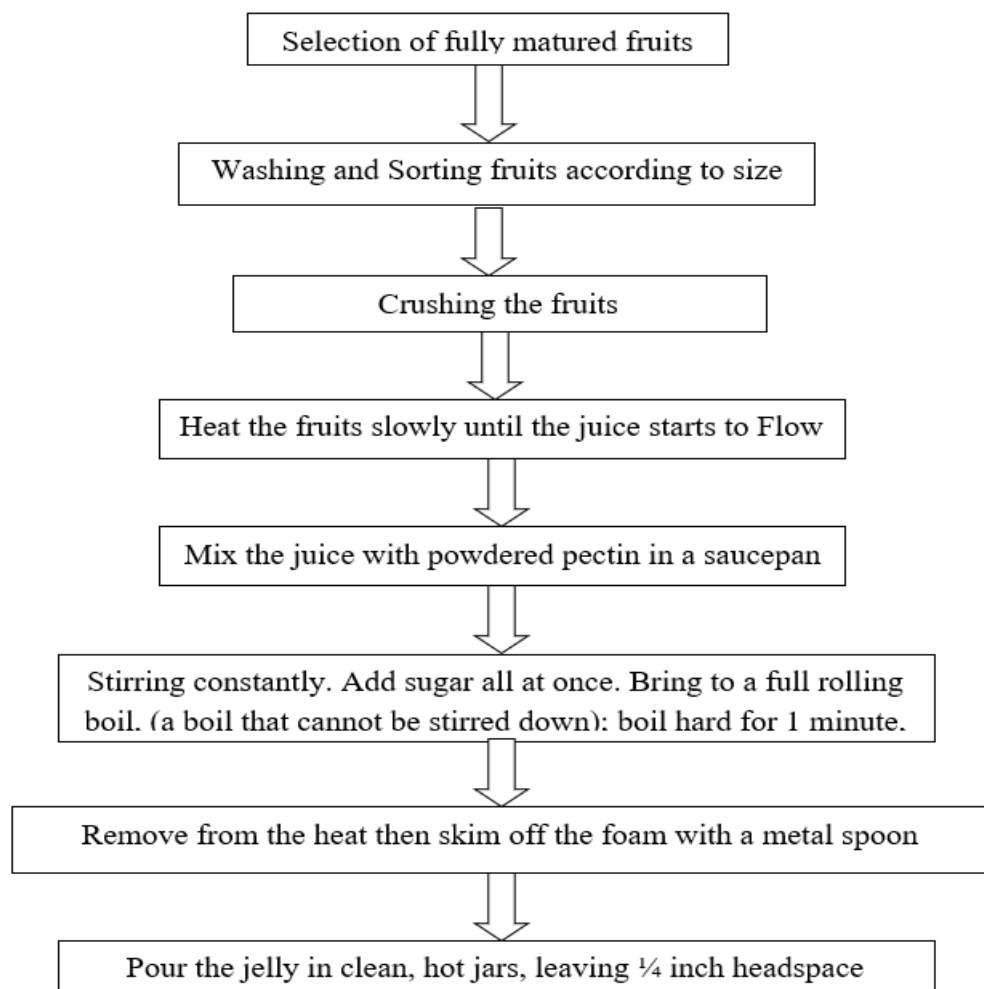
The mulberry belongs to the family Moraceae. Mulberry is believed to originate on the lower slope of the Himalayas and is a native of either India or China. The mulberry flower occurs during late winter or the beginning of spring. The fruits are sorosis. The fruits have attractive purple-to a black colour and pleasing flavors. Mulberry is a fast-growing deciduous plant found in a wide variety of climatic, topographical and soil conditions, and is widely distributed from temperate to subtropical regions. It has also good medicinal properties and can be used for debility symptoms when used with other restoratives [4]. Mulberry leaves provide significant levels of calcium, vitamin C, beta-carotene, and protein. It is easily cultivable in several regions of

India, which means that it can assist in meeting the recommended dietary requirement for a variety of micronutrients and enhancing the health of vulnerable people [7]. Different products like marmalade, fondant jams, jellies, cakes, breads, parathas, fruit teas, fruit drink pulp, fruit wine, fruit sauce, fruit powder, and chocolate can be prepared by mulberry.

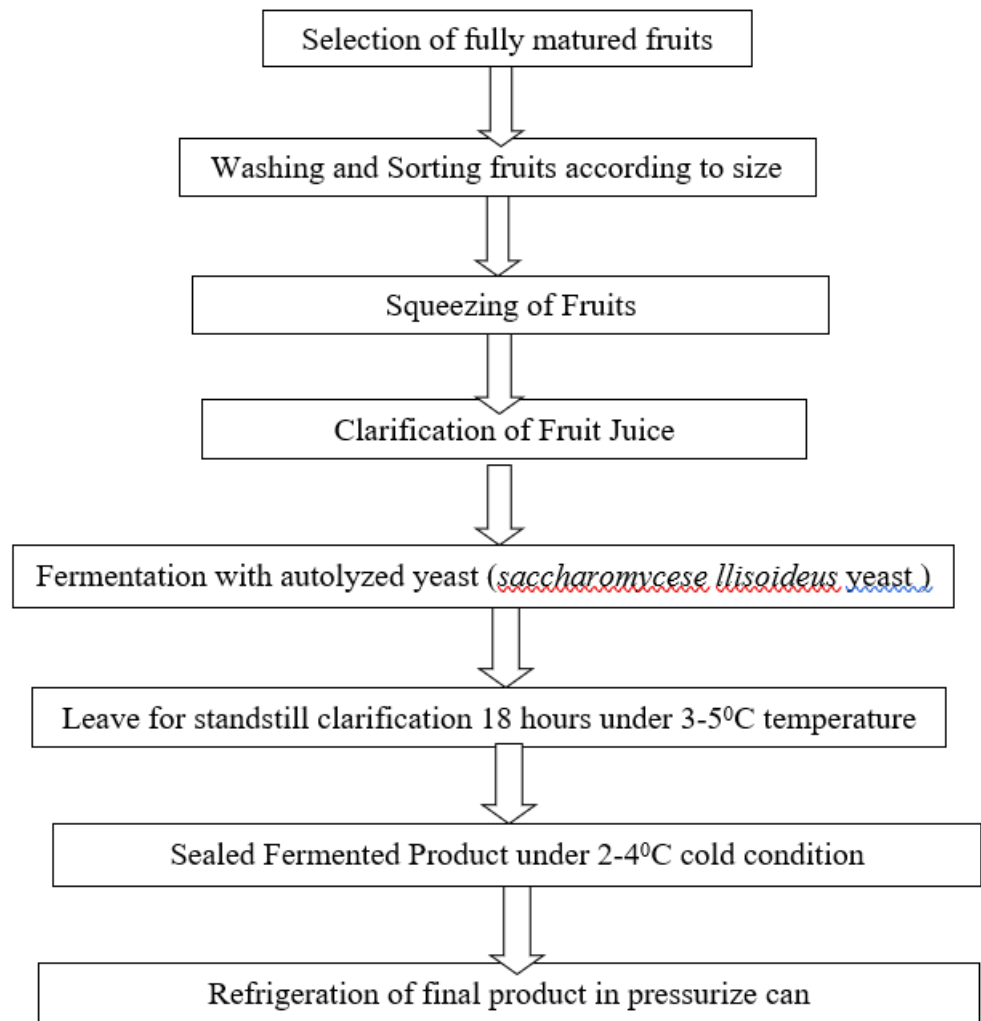


Source:- <https://www.sciencedirect.com/science/article/pii/S266671932030011X>

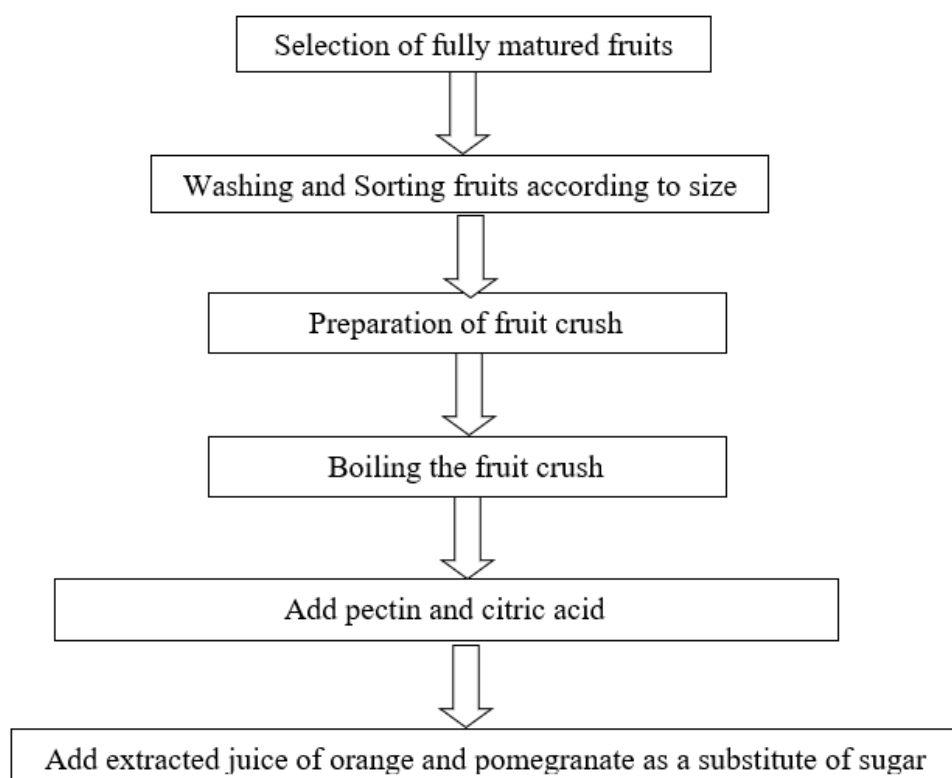
Mulberry Jelly:-

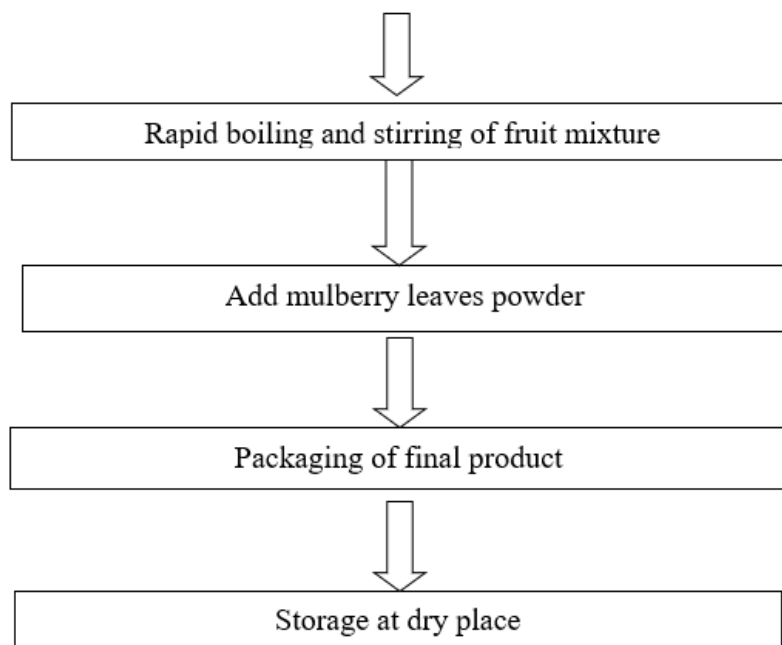


Mulberry Sparkling Wine



Mulberry Jam:-



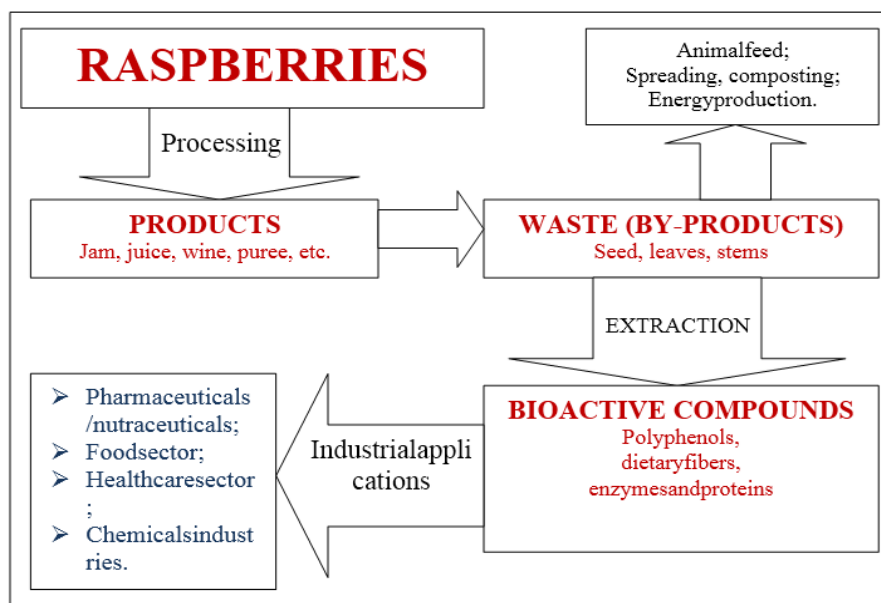


Clarification of mulberry juice:

1. Adjusting the range of total acid in mulberry juice up to 4-6 g/L
2. During the fermentation step add residual sugar of 16-20 g/L
3. After adding the residual sugar change the jar and carry out interior scaled fermentation of the jar from the dissolubility yeast.

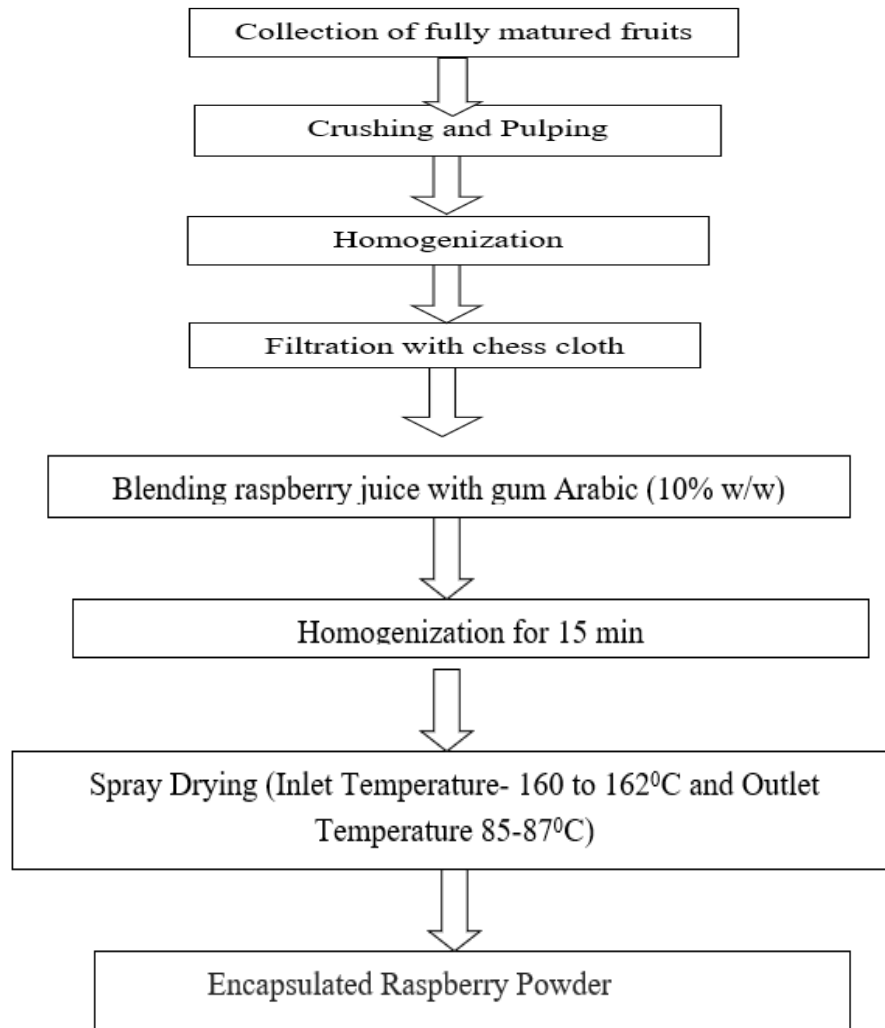
B. Raspberries:

Raspberries (*Rubus idaeus*) is an aggregated fruit belong to the family of rosaceae. Plants in the Rubus genus have prickles like roses and are often called brambles. Raspberries are grown for both the fresh fruit market and processing sector in to frozen product, puree, juice or dried fruits. Raspberries are rich in fiber, vitamin C and antioxidants [2].



Source: <https://kosmospublishers.com/valorisation-of-raspberries-by-products-for-food-and-pharmaceutical-industries/>

Encapsulated Raspberry Powder



Waste Utilization of Raspberry

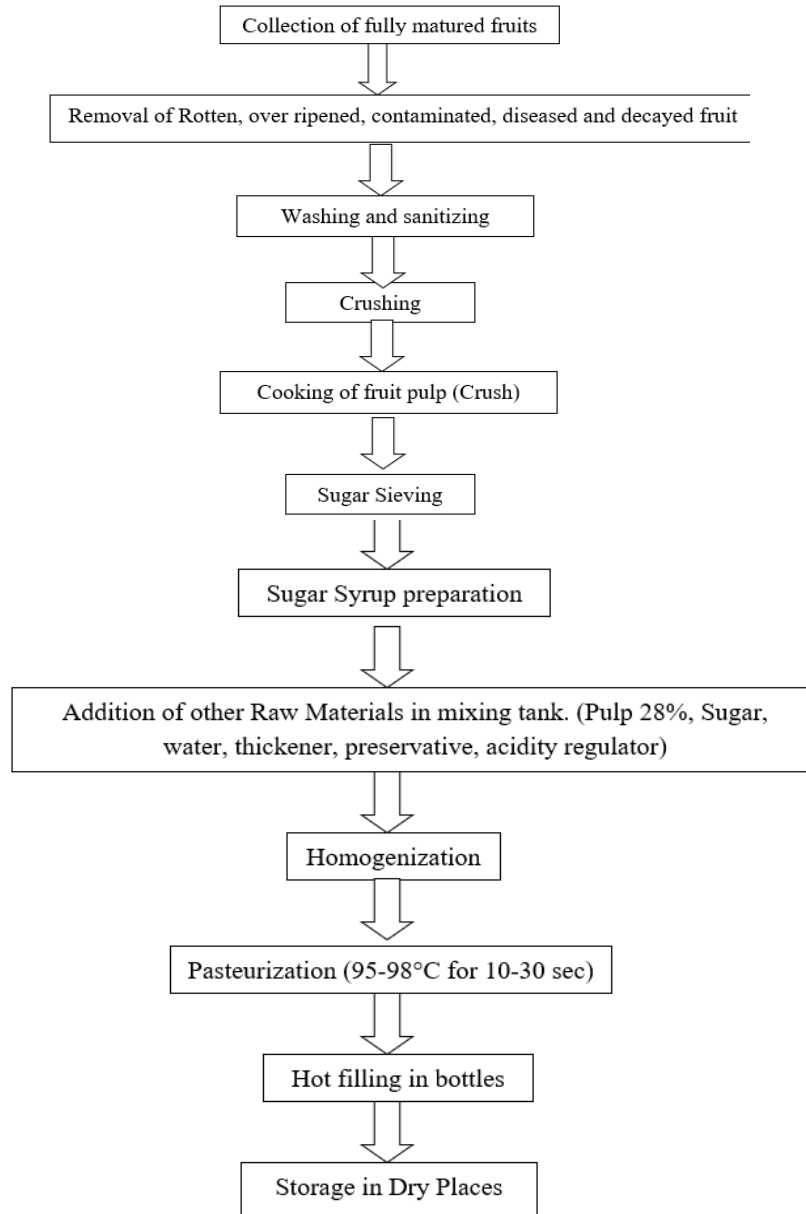
Waste and by-products generated from the processing of raspberries can be used in different cosmetic and pharmaceutical industries and these waste products are also used in eco-friendly applications like animal feed, bio-energy production [12]

Seeds extracted from these berries are a rich source of antioxidants and it may be used to prevent different human diseases *i.e.* cardiovascular, diabetes and different type of cancer.

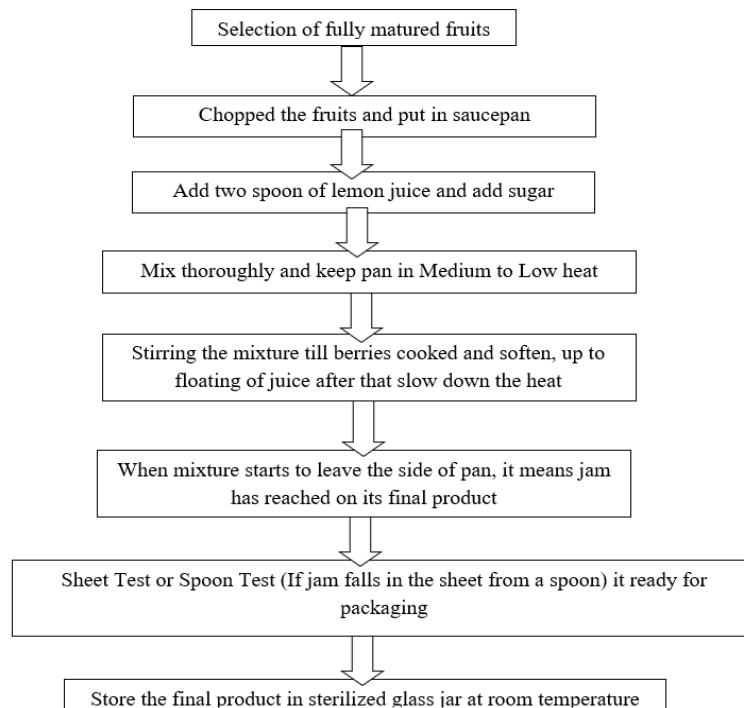
C. Strawberry

It is important crop grown in temperate and sub-tropical areas of India. It is an aggregated fruit and it is widely grown as a hybrid species of *fragaria* × *ananassa*. The first strawberry species was cultivated in early 17th century. This fruit is mostly appreciated for its peculiar aroma, bright red colour and juicy texture. Strawberry is a very good source of magnesium, potassium and vitamin C. [5]. Strawberries have a low glycemic index and are fat-free. However, the sugar that they do contain is fructose, not sucrose or, obviously, added sugar. Strawberries' fibre also reduces the rate at which natural sugars are absorbed. Strawberries are rich in vitamin C and other antioxidants, which help reduce the risk of serious health conditions like cancer, diabetes, stroke, and heart disease. Strawberry is consumed in large quantity either fresh or after processing and prepared product like jam, Juice, Powder and Milkshake.

Strawberry Crush



Strawberry Jam:



D. Blue berry

Blueberry (*Vaccinium cyanococcus*) is a low bush berry, It is belong to family of Ericaceae. It is considered as a super fruit due to abundant polyphenolic compound. It is beneficial for reducing the oxidative stress and it also plays the important role in preventing bloodsugar. Blueberries are rich in anthocyanin and antioxidants [1]. It is also recognized as a king of world fruit. The United States is the largest producer of blueberries in the world. It is processed as IQF (Individually Quick Frozen), Puree, Jam, Jelly, Pie, Cookies and Muffins, etc.

Product prepared from Blue Berry:

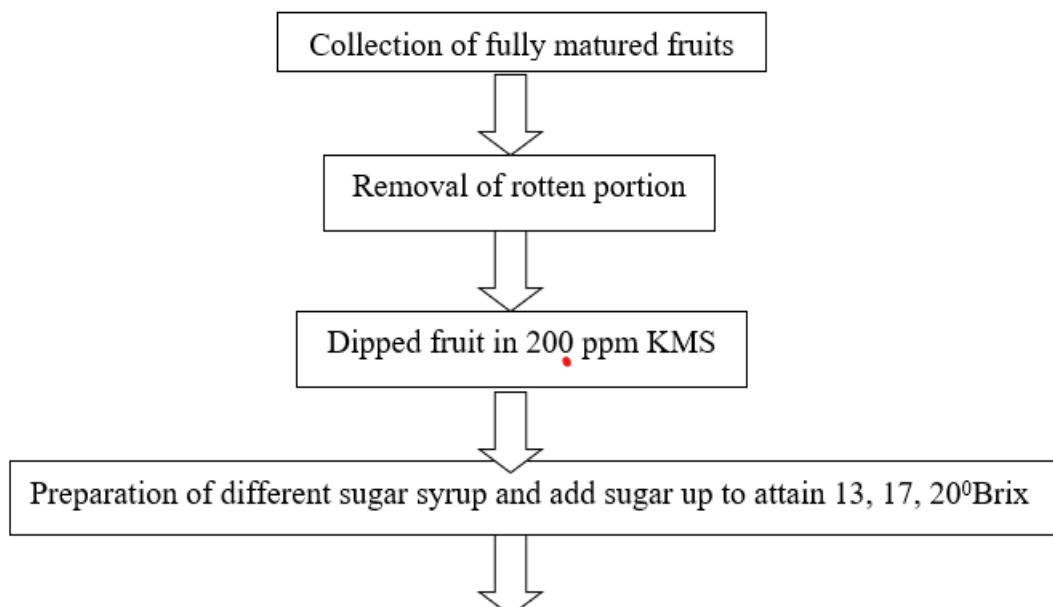


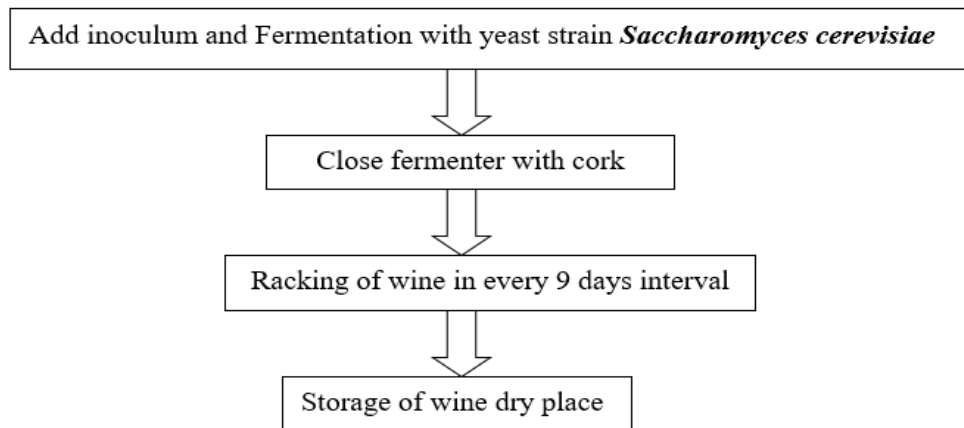
Source: <https://www.sciencedirect.com/science/article/abs/pii/S0168160522003622>

Blueberry Juice

Blueberry Juice is a popular product in the United States. It is a healthy beverage due to its higher phytochemical content and for canning of this juice maintain the temperature between 93-95 °C for 25-30 min.

Blueberry wine



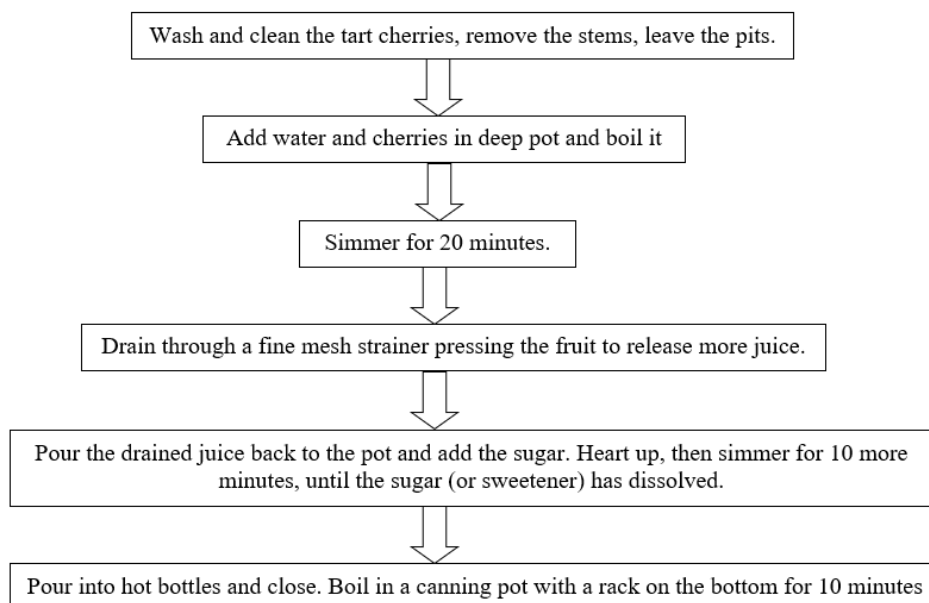


III. Glimpse of Value Addition of Cherries:

A. Tart Cherry

Tart Cherry is known as *Prunus Cerasus*. It is commonly cultivated in the U.S. Tart cherries are rich in antioxidants like proanthocyanins, anthocyanins, and flavanols and it is also rich in vitamins and melatonin. It is beneficial for cardiovascular diseases and Blood Pressure. Chemicals in tart cherry fruit may function as antioxidants and prevent edoema [11]. Even though up to 97% of tart cherries grown are used in cooking and baking, some tart cherry products are marketed for specific health benefits. It is processed as a concentrate, Jelly, Jam, and wine [9].

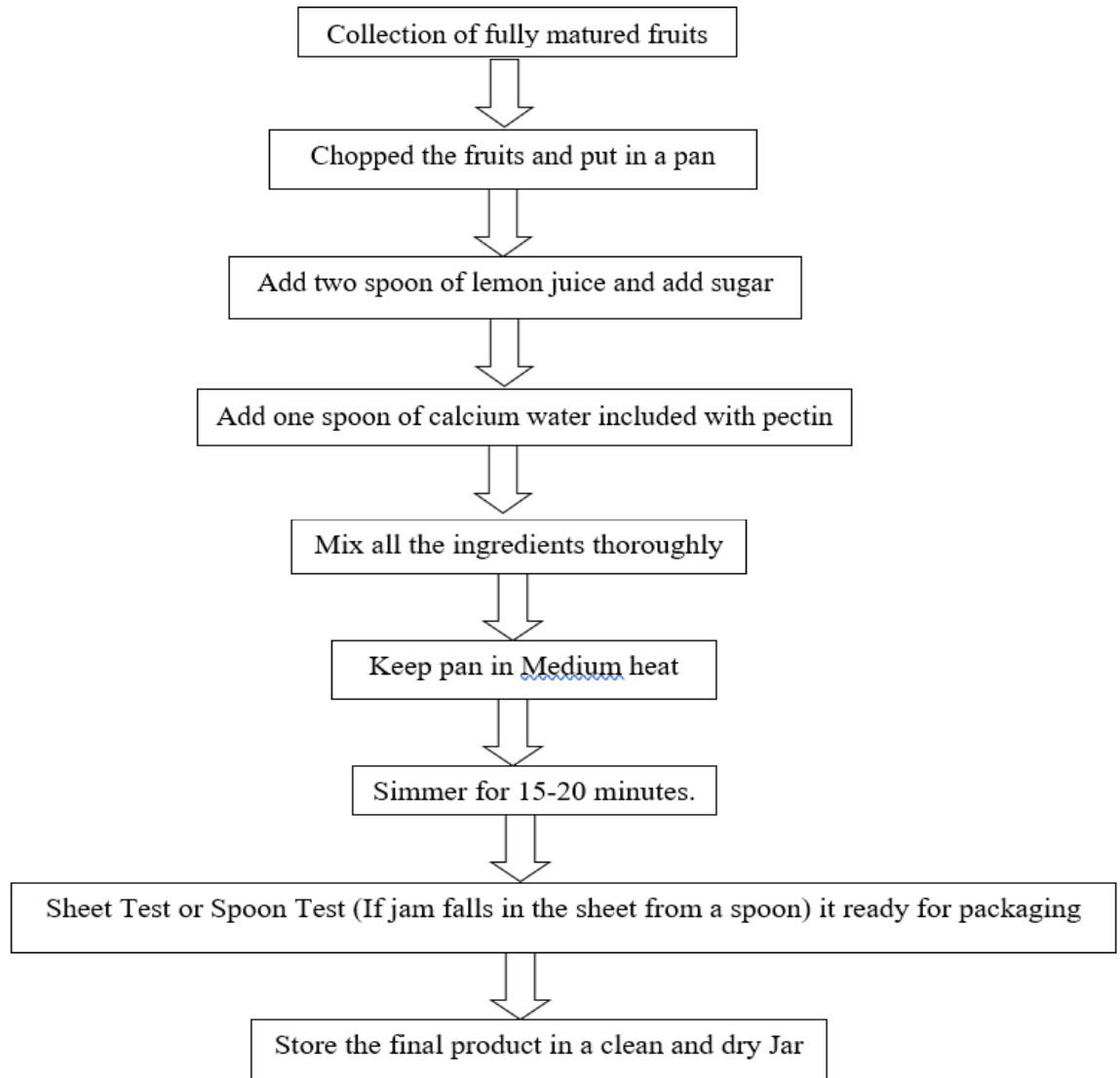
Tart Cherry Concentrate:



B. Rainier Cherry

Rainier Cherry is a premium type of cherry. It was named after Mount Rainier. It was developed at Washington State University by Harold Fogle in the year of 1952. The standard rootstock used for Rainier cherry is Mazzard Cherry. The Rainier cherry tree is a large, yellow cherry with red blush, and very firm yellow-white flesh. It will produce fruits in 3 to 5 years. It is one of the most cold hardy sweet cherry. Washington produced best quality Rainier Cherry. The flavour of Rainier cherries is remarkably sweet and low in acid with a caramel-like finish on the palate. Rainier cherries have a low glycemic index, which means they can regulate blood sugar levels and prevent diabetes [3]. Various value-added products are prepared from Rainier Cherry like dried cherries, Cherry Jam, Cherry Pie, Cherry Juice, and Cherry sauces. Value-added products provide additional opportunities for farmers to diversify their contributions and surge revenue

Rainier Cherry Jam



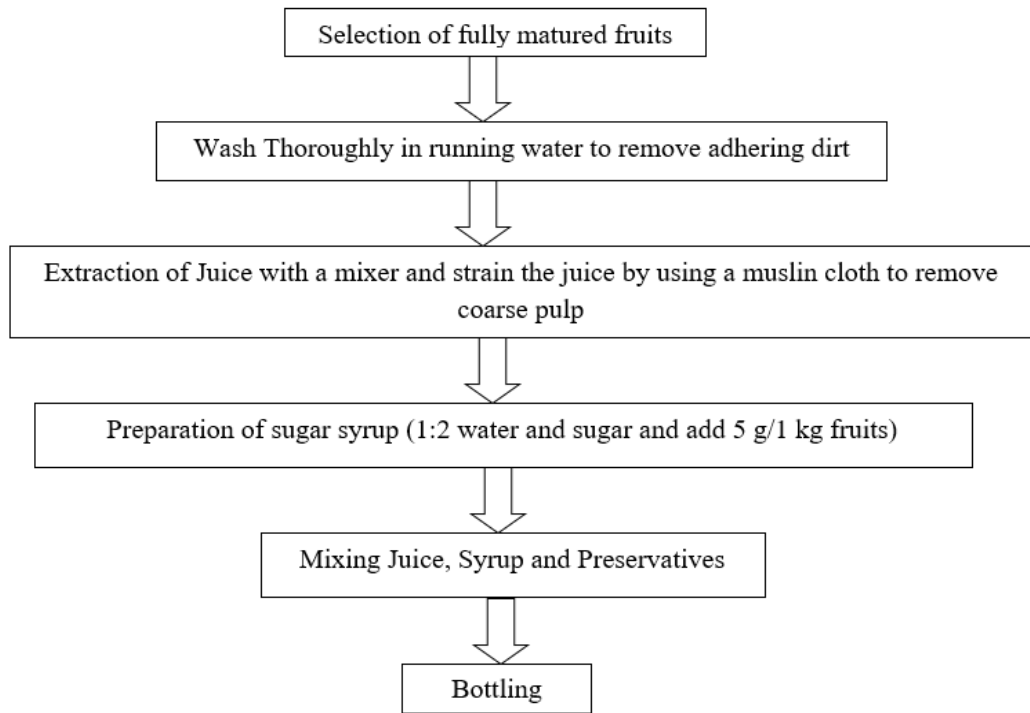
C. Barbados cherry

Barbados cherry (*Malpighia emarginata*) is a tropical and subtropical shrub that belongs to the family of Malpighiaceae. It is also called West Indian Cherry. It is known for being tremendously rich in vitamin C. *M. emarginata* also contains vitamins A, B1, B2, and B3, as well as carotenoids and bioflavonoids, which provide important nutritive value. The fruit shows high antioxidant capacity and numerous exciting bio-functional properties like skin whitening effect, anti-aging, and multidrug resistant reversal activity [6]. Barbados Cherry will help avoid gout, boost the immune system, reduce oxidative stress, and be advantageous for collagen formation due to the abundance of vitamin C. As of now, the fruit is grown as a backyard tree in the states of Tamil Nadu, Kerala, Maharashtra and Karnataka. During 1995–1996, a few selections of plants were introduced in Andaman and Nicobar Islands that performed well due to tropical and humid climate [10].

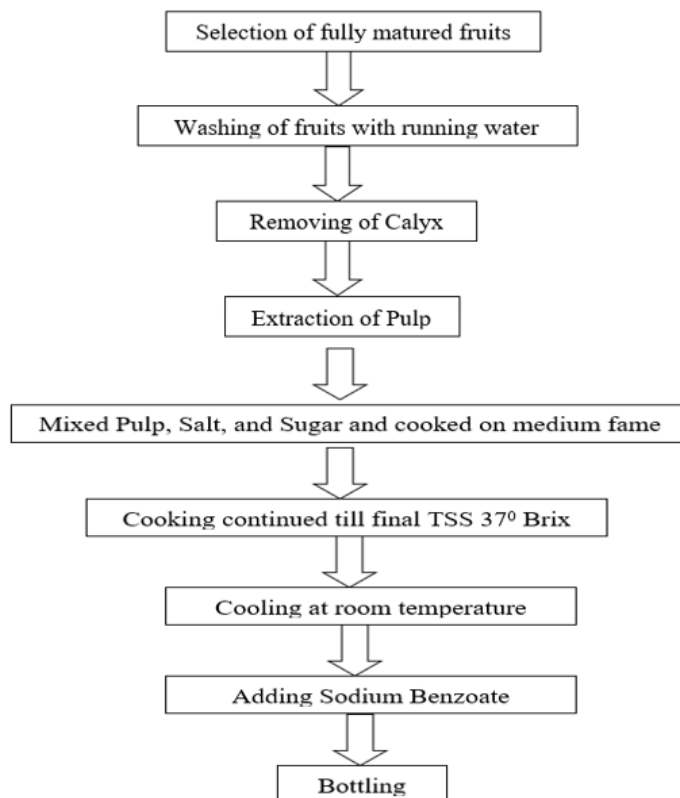
Acerola is an exotic fruit that has exceptional agro-industrial potential and represents an alluring economic prospect. The crop has not yet become popular among Indian farmers due to a lack of knowledge about its nutritional worth and cultivation, and it still remains a lesser-known and underutilized fruit [8]. The fruits may be consumed fresh or its pulp can be used for the preparation of juice, jam, jelly, preserves, syrup, etc.

West Indian cherries are a fruit that is incredibly underused and have the potential to be used to create a variety of products. In times of abundance, this fruit's high vitamin C content is not fully utilized.

West Indian Cherry Squash



West Indian Cherry Sauce



IV. Conclusion

India, a diverse nation with a large variety of fruits, may play a significant role by offering processed goods with distinctive flavours. It is past time for our nation to prioritize utilizing these local fruits and marketing the processed goods globally so that we may both profit the nation and give nutritious items with little effort. It

won't just have a big economic impact. a rivalry in international trade. Unexploited fruits should be viewed as a supplement to traditional fruits, not as a replacement.

V. References

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