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VALUE ADDITION OF UNDERUTILIZED FRUITS CROP

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ABSTRACT

The demand for nutritious food has been increased by the consumers for some additional health benefits for the development of functional and nutraceutical food products. Horticultural crops are major branch of agriculture which have potential to increase the farmer income, earn foreign exchange and provide livelihood security and also fulfils the requirements of GDP. Value addition in the horticultural crops including fruits, vegetables, herbs and spices which enhance the nutritive value of the food and complete the nutritional requirements for human. Value addition reduces the post-harvest losses and preserves the nutrients in fruit crops through the making of sauces, pickles, jams, jellies etc. and it is also very important in reduce the problems like malnutrition, health and age-related problems.

Keywords: Horticultural crops, malnutrition, nutrition, post-harvest.

Introduction:

Fruits are consumed in human diet that exhibits physiological properties, and possessing phytoconstituents which decreases the risk of non-communicable diseases like cancer, cardiovascular diseases and age-related functional deformities. Under the fruit crop production, value addition is major practices which is using for the preserve nutritional value, meet consumer requirements, optimize the utilization of by-products and create employment opportunities. Dehydration and drying recues the moisture from the food and inhibits the growth of the microorganisms, low temperature like refrigeration and freezing reduces the biochemical reaction responsible for the spoilage, canning, sterilization and pasteurization kills the pathogenic.

Underutilized fruits in India

Amla/Aonla:

Amla is found in many regions of India and is a very rich source of vitamin C (500-600 mg/100 g of fruit pulp). When amla is consumed in the form of whole fruit rather than consumes isolated vitamin c from it, the vitamin c gets easily assimilated in the body and have vital antioxidant properties. It is also a source of proteins and vital minerals such as calcium, iron and phosphorus. Being rich in vitamin C content, it has been the ingredient of many foods and medicines. The nutritional values of amla are uncountable and therefore recommended to be incorporated as a part of the everyday diet. The fruit acts as an aperients, diuretic and laxative agent. It also helps in curing constipation, insomnia, scurvy and is utilized as a cooling agent to lessen the effects of sun strokes. It is also beneficial for leucorrhoea and haemorrhage (Hasan, 2010). Being a rich source of antioxidant, it also helps in preventing premature ageing. . Amla reduces the blood sugar level in diabetic patients by

stimulating the cells responsible for the secretion of insulin (Iyer et al., 2009). Amla, when consumed fresh in the form of whole fruit or applying its paste on hair reduces graying and falling of hair and also treats the scalp.

Indian Jujube/Ber:

Ber is a part of the family Rhamnaceae. It is generally grown in semi-arid and arid regions in subtropical and tropical climate, where generally other fruit crops are unable to grow because of adverse climatic and soil conditions and lack of irrigation. It is a good source of vitamin A, C and B – complex. The root and bark decoction is used to treat dysentery, whereas leaf decoction is beneficial for gargles in sore throat and bleeding gums. The kernels of seed are an aphrodisiac. The ber powder is utilized for treating fever, ulcer and wounds. Several value-added products such as chutney, dried ber, jelly, murabba and even wine is prepared from the fruit of the ber.

Fig:

Fig is highly nutritious, containing 84% pulp and 16 % skin. It is a good source of calcium, iron, protein, thiamine and vitamin A. it has very good laxative properties. It is utilized to cure boils and various other skin infections (Polunin, 1994). The latex is consumed for milk coagulation (Morsli, 1985), whereas leaves are utilized as anthelminitic, diuretic, demulcent and emollient. The figs can be consumed fresh, dried, candied, canned or preserved. Fresh figs are highly nutritious and are used for the preparation of desserts, cakes, jams, jellies and pudding.

Karonda:

Karonda is a spiny, evergreen, hardy and indigenous shrub, which grows very well as a rainfed crop. It is a part of the family Apocynaceae. The fruits are astringent and sour, and contain plenty of vitamin C and iron. They are also a good source of carbohydrates, proteins, fat, calcium and fibre. It is utilized to cure anaemia, anthelmintic and stomach ache and also acts as antiscorbutic. Root extracts are utilized to treat lumbago, venereal disease and chest complaints. The fruits are also utilized in dyeing and tannery industries. The ripened fruits are consumed as either dessert or are used in preparation of sauce, Carissa cream, jelly or jellied salad. Unripe fruit is utilized for the preparation of chutney, pickles, and sauces. The dried fruits are also sometimes acts as a replacer for raisins. The wine prepared from karonda contains a quite good amount of alcohol (14.5 – 15.0 %).

Passion fruit:

The fruits of passion fruit have unique aroma and flavour. It is a good source of ascorbic acid, provitamin A, niacin, riboflavin and minerals. The pulp is utilized in the preparation of salads, fruit juices and ice – cream. Other processed products made from passion fruit are jams, jellies, juices, and squash (Kour et al., 2018).

Value addition of underutilized fruit crops

The exact number of underutilized crops with respect to quantity produced and processed is not available as the considerable amount is consumed and sold locally. Moreover, the majority of these crops are not grown commercially, rather grown in kitchen gardens, wild or field boundaries. The fruits are sold fresh, seasonal and very limited processing is done, but they have high potential for processing, especially primary processing such as drying, removal of pulp, cutting, chopping, etc. (Chandra et al., 2017). The secondary processed products such as pickles, bar, wines, squash etc. will fetch even a more good amount of returns.Various

primary and secondary processed products from underutilized fruits have been shown in Figure 1. As these underutilized fruits is mainly found in rural and tribal areas, value addition will help in uplifting of the socioeconomic status of rural families. Keeping in mind the today's scenario of continuously growing population with the limited land, establishment of agro-processing industries in the tribal and rural areas is the need of the hour. It will not only meet the continuously increasing demand of processed products, but will also help to increase the real farm income in the future (Nandal and Bhardwaj, 2014). Value addition will also open the new opportunities of employment for the rural people.

Various value-added products from underutilized fruits in India

- Ber pulp was used in drinks (Kiradoo and Goyal, 2005), Fresh ker fruits were utilized for pickles, whereas immature fruits were dried and were used in the off season (Sen, 2003). Ber fruits were also utilized for the preparation of candy, dehydrated ber, murabba, jam, ready to serve beverage and pulp (Pareek, 2001).
- Jack fruit has been utilized for the preparation of several processed products such as candied jackfruit, canned jackfruit bulbs in syrup, jack seed flour, raw jack pickle, roasted jack seeds and squash (Madhu and Sharma, 2009; Monika, 2014; Das and Prakash, 2011).
- Bael pulp was utilized for the preparation of squash, slab, toffee powder, nectar, etc. (Khurdiya, 1980).
- Jamun fruits have been utilized for the preparation of various fermented and non-fermented beverages. It can also be used for the preparation of jams, jellies and leather. The seeds, processed into powder have proven to be very helpful in curing diabetes (Khurdiya, 2001).
- Karonda is mainly processed into pickles.
- Banana hearts are consumed as vegetable either steamed or raw, with dips or cooked in curries, soups and fried foods.

Future perspectives of value addition underutilized fruit crops:

The change in the consumer behavior and the transformation in the food consumption demands for the value addition in horticultural crops for the development of functional, nutraceutical and convenient foods. The present scenario of value addition shows that it has undergone for the updation in terms of quality of food products for receiving the higher return and excellent market response. The consideration for the value addition following imperatives related to good agricultural practices (GAP), sustainable livelihood generation (SLG), management for soil, water and biodiversity conservation, climate resilient production system and ensuring food security needs to be added (Acharya et al., 2015).

Conclusion:

The present status of India, it is facing the problems of malnutrition, unemployment and hidden hunger. So, need to the exploitation of underutilized fruit crops commercially for value addition can be the promising solution to curb these problems. The underutilized are rich and easily accessible sources of macro and micro nutrients and can even be grown in harsh conditions. The value addition of underutilized crops will generate the employment for the poor people and also important ingredient of many Ayurvedic

medicines being their therapeutic properties. Therefore, it can be concluded that exploring more and more underutilized fruits can provide a way for the economic and nutrient security of people.

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