

Value Added Products from Rough Lemon

Citrus is considered as one of the most important fruits of the world. India has a wide range of citrus. *Citrus jambhiri* Lush, one of the wild cultivars of citrus belongs to family Rutaceae and is indigenous to India. It occurs in different parts of our country and is known by different names such as *kata jamir*, *soh-jhalia*, *Jamberi*, *Jatti khatti*, etc. and also known as Rough lemon throughout the world.

The jambhiri blooms only once, where as other lemons are usually flower several times in a year. This fruit is also distinctive in its resistance to various diseases especially to gummosis to which lemon is usually susceptible.

Commercially, lime and lemon juices are among the world's most important citrus products, these are used as common ingredients in most of the traditional Asian cooking. They are indispensable for many global food productions, such as limonade drink, marmalade, jams, jellies, pharmaceutical products and medicines. In Ayurveda, it is used in many pharmaceutical procedures of purification (Sodhana), calcinations (Marana) etc.

Limonin a triterpene derivative present in most of the citrus cultivar produces bitter flavour in the juice. It is palatable in only a few cultivars. Bitterness in citrus fruits is mainly due to limonin. It develops gradually in juices after the juice extraction. The intact fruit does not contain limonin rather a non-bitter precursor, a limonate-A-ring lactone. The conversion is accelerated by the action of enzyme limonate-D-ring lactone hydrolase that is present in citrus fruits.

Citrus jambhiri Lush trees are excellent bearers. Rough lemon juice is highly acidic in nature and juice become bitter after few hours of extraction therefore it is not preferred much by the consumers. Hence, rough lemon juice can be converted into value added products. Among the various horticultural products, fruit beverages occupy an important place. Fruit beverages such as ready-to-serve (RTS), nectar and squash are easily digestible, highly refreshing and are far superior to almost all kinds of aerated drinks which have practically no fruit value.

Rough lemon is widely available in the hilly area of Uttarakhand. But is not utilized properly. It has great potential in beverage industry.

Advantages:

Potential benefit of investigation is that rough lemon fruits are available in plenty in hilly areas of Uttarakhand but are not being used properly mainly due to bitterness in juice which can be converted into value added products namely RTS and squash having great marketing potential.