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Burmese Grape (*Baccaurea Ramiflora* Lour.): An Underexploited Fruit Crop with Excellent Nutritive Potential

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SUMMARY

Burmese grape (*Baccaurea ramiflora* Lour.) belongs to family Euphorbiaceae, it is an underutilized fruit crop grown mainly in the backyard plantation and as forest plant. As the fruit pulp has the blend of sweet and sour, which can be commercialized in the field of food processing and brewing industry. It is a rich source of Vitamin C, which has established antioxidant property, rich in minerals, which can help eradicating many of the non-communicable diseases at a very cost-effective way. The seed oil contains omega-9 fatty acids and other fatty acids of commercial importance.

INTRODUCTION

Burmese grape is an underutilized fruit crop grown mainly in the backyard plantation and as forest plant. The generic name is derived from Latin 'baccaurea' referring to the golden-yellow colour of the fruits (Chakrabarty and Gangopadhyay, 1997) apart from Burmese grape it is also known as Latka, Lutco, Leteku, Lotqua, Baccaurea, Lantern Tree and Mafai. The fruit is mild acidic in nature and mainly used as fresh fruit consumption. The tree is dioecious, evergreen, shade loving plant. Burmese grapes originated in South Asia. The Baccaurea genus has hundreds of species, several of which are in Thailand. As explained in the book, "The Encyclopedia of Fruits and Nuts" Burmese grape grows wild in Nepal, India, Myanmar, South China, Indochina, Thailand, the Andaman Islands and peninsular Malaysia. Outside of these regions, the fruit remains relatively unknown. As its name suggests, Burma cultivates the fruit extensively, and to a lesser degree, is harvested in northern Thailand, Assam, Java, Sumatra, Bali, and Vietnam (Peter, 2007).

Botany:

It is a medium-sized, slow growing evergreen tree which reaches up to 15-25 m tall and 25-70 cm in diameter with a round and a shady crown. Stem is grey-brown in colour, branchlets hispid while young and become glabrescent at maturity. It is sun loving plant and found growing in sandy and granite soils but it also survives in a wide range of soils, in well-drained as well as wetter sites.

Leaves:

Leaves are simple, alternate and spirally-clustered at intervals along the twigs. Leaf blade obovate, apex acuminate, base acute, margin entire or slightly undulate, reddish when young, finely brown-hairy, becoming dark green and shiny above and glabrous when mature.

Flower

The trees exhibit dioecious in nature. Male flowers are smaller, arranged in slender clusters of 10 cm, found mostly at the end of the branches and each individual flower is found to have short pedicel. Female flowers are slightly bigger, racemes clustered of 30 cm long on old branches and main trunk. Flowering time ranges from April to May.

Fruit:

Fruit is a baccate berry, globose, ovoid to slightly pearshaped, 3-celled, hanging along old branches and main trunk. The fruit is green coloured while young, turning yellow, red or even deep purple as they mature. Juicy white to pinkish white aril is the edible portion, and this translucent pulp is enclosed by leathery rind. In the middle of the pulp there are several small, hard seeds, flat-elliptic or round, 1–1.3 cm with purplish red testa which is edible. Fruit pulp with a blend of sweet and sour, rich in vitamin C can be commercialized for food processing and brewing industry. The fruit is used locally, consumed as a fruit, stewed or made into wine; it is also used to treat skin diseases. Its texture resembles a lychee fruit, but is less juicy and more fibrous.

Propagation:

Burmese grape is propagated by seeds and as it is dioecious in nature, wide variation is seen among the present plant population (Bdullah *et al*., 2005).

Variety:

FTIP-BAU Latkon 1 is a burmese grape variety released in 2006, at Germplasm centre - Bangladesh Agricultural University, which yields 8 to 10 tonnes per hectre.

Biochemical properties:

It is one of the rich wild edible fruit rich in nutritive value. The seed is rich in oil content. The seed oil has a low moisture content which is a sign of good quality and its ability to resist contamination or rancidity. The oil is utilized in studies relating to optics. Most of the saturated fatty acids in seed oil has commercial value in soap, detergent, cosmetic industries (Gogoi, 2017).

Table 1: Proximate fruit composition of Burmese grape per 100 gm of pulp (Sundriyal and Sundariyal, 2004).

Proximate	%	Minerals	mg	Vitamins	mg
Water	35.6 C	Calcium	75	Ascorbic acid	273
Protein	5.58	Phosphorus	132		
Lipid	0.73	Potassium	730		
Carbohydrate	51.9	Sodium	35		
Fibre	20.4	Iron	100		
Ash	3.85				

Medicinal Properties:

The plant is mentioned in different traditional system of medicine and many ethno botanical uses have been reported. *Baccaurea ramiflora* has been mentioned in the Chinese Dai medicine. It is used as an anti-inflammatory and painkiller in treatment of injuries, rheumatoid arthritis, cellulitis, abscesses etc. (Lin *et al*., 2003). Young leaves of the plants are used as vegetable or flavouring agent for curries and minced meat in many places. The fresh bark of the plant chewed or juice taken orally for complaints of constipation in India (Khan, 2008). Vitamin C is an electron donor and this property makes it a potent water soluble antioxidant for human (Padayatty *et al*., 2003). The fruit is also rich in iron, which can help in alleviating the anaemic condition, which has high significance in India. The seeds of the plant produce a valuable dye called 'annatto' which is used for colouring silk and cotton. Seed oil contains saturated fatty acid and omega-9 fatty acids which can be utilized in health, cosmetics and other industries (Raghavan and Ramjan, 2018).

Availability of Burmese Grapes in India

Burmese grapes grow best in moist, humid tropical fields and lowland forests up to 1,000 meters. India's growing regions extend from Sikkim's hills to the border of Nepal; the Darjeeling hills, Arunachal Pradesh, Tripura, and Assam. The major Burmese grape regions in the northern West Bengal are Cooch Behar, Jalpaiguri, Darjeeling, and the Uttar and Dakshin Dinajpur districts. Burmese grape season begins in mid-April, and lasts through the rainy season until early September. Peak season is during June and July, but expect higher prices near the festival season on account of increased consumer demand. Burmese grapes are rarely found outside of the Northeast. Shipping outside of these regions is difficult due to the fruit's high perishability and sensitive skin. Unfortunately, utilization of this valuable natural resource is less due to lack of knowledge on their nutrient value. Thus it is required to promote and highlight the economic potential of this underutilized fruit and to help in conservation of the bio resources.

CONCLUSION

Baccaurea ramiflora, mostly found in tropical forests with wild distribution, has multiple uses in different countries of the world. One of the high priced fruit because of its nutritive value and its scope for bio prospection (Gogoi, 2017). As the fruit pulp has the blend of sweet and sour, which can be commercialized in the field of food processing and brewing industry. It is a rich source of Vitamin C, which has established antioxidant property, rich in minerals, which can help eradicating many of the non-communicable diseases at a very cost-

effective way. Seed oil can also be extracted and commercially exploited, as it has shown presence of omega-9 fatty acids and other fatty acids of commercial importance in it. Thus it is required to promote and highlight the economic potential of this underutilized fruit and to help in conservation of the bio resources. It can contribute in the generation of wealth through research and development and mitigation of poverty in the biodiversity rich regions.

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