

## Burmese Grape (*Baccaurea Sapida* Muell. Arg.) - An Underexploited Fruit Crop of Nutritional and Economic Importance

B. C. Banik<sup>1</sup>, N. B. Ubale<sup>1</sup>, R. Pain<sup>1</sup> and N Bhowmick<sup>2</sup>

<sup>1</sup>Department of Fruits and Orchard Management, Bidhan Chandra Krishi Viswavidyalaya, Mohanpur, Dist- Nadia, West Bengal, India, <sup>2</sup> Department of Pomology and Post Harvest Technology, Uttar Banga Krishi Viswavidyalaya, Pundibari, Dist- Cooch Behar, West Bengal, India

### Abstract

Northern parts of West Bengal possess ample scope for cultivating underutilized tropical and subtropical fruit species. Burmese grape (*Baccaurea sapida* Muell. Arg.) can be grown well in home-stead and intercropped with rambutan (*Nephelium lappaceum*) and mango (*Mangifera indica*) It is good source of vitamin C and minerals like calcium and iron. The average diet of rural communities in West Bengal, India is highly deficient in calories, nutrients (calcium, iron) and vitamins (A and C). The crops grown in home-stead are the only sources of protective food for people living in villages in meeting their requirements of vitamins and minerals. Besides meeting the nutritional requirements, it is having much aesthetic, medicinal and income generation potential.

**Keywords:** *Burmese grape, Latkan, Underutilized crops, Baccaurea sapida*

### INTRODUCTION

Burmese grape (*Baccaurea sapida* Muell. Arg.) belong to family Euphorbiaceae and native to South East Asian region (Sundriyal and Sundriyal, 2003). It is found to be grown in wild habitat as well as under cultivation in Nepal, Bangladesh, Thailand, Myanmar, Indonesia, India, and Malaysia. In West Bengal it is mainly grown in the northern parts, like Cooch Behar, Jalpaiguri, Darjeeling, Uttar and Dakshin Dinajpur districts under homestead cultivation. It is grown in kitchen garden or homestead farming hence treated as an underutilized fruit crop (Bhowmick, 2011). More often it is nurtured in home gardens and intercropped with fruits like durian, rambutan and mango. In West Bengal it is also known as 'Latkan' or 'Latka' or 'Lotko'.

### Utilization

The fruits possess nutritional, aesthetic and industrial importance. Burmese grape or Latka is consumed as fresh fruits in this locality. In Bangladesh, apart from fresh consumption, it is cultivated chiefly for production of valuable dye *annatto* from seeds. Seeds contain 4.8 – 6 percent annatto dye. Annatto is used for colouring silk, cotton and other textile materials for orange colour (Abdullah *et al*, 2005). In West Bengal, fruit is largely used for religious purpose. The fruits hold a good nutritional value and are edible when ripe and tastes delicious.

### Nutritional value

It carries a high amount of vitamin C, protein and iron (Peter, 2007) hence used as a novel food additive. Fruits contain 5.5 percent protein, 178 mg vitamin C per 100 g of pulp, and among the minerals the fruit contains 169 mg calcium, 137 mg potassium, 177 mg phosphorous, and 100 mg iron per 100g of fruit pulp (Kermasha *et al*, 1987). The fruit contains 273 mg of vitamin C per 100 g of fruit pulp (Sundriyal and Sundriyal, 2003).

### Flowering and Fruiting

It is a medium-sized evergreen tree which reaches up to 5-10 m in height with a round and a shady crown. The plant flowers during the month of mid-March and sets fruit up to mid- April. The immature fruits are green in colour and takes 90-120 days to reach maturity. At maturity, the fruit skin colour turns to yellowish to yellowish brown. In West Bengal, fruits are harvested in the month of June- July. The tree shows to some extent mild bienniality in cropping pattern.

### Propagation

The seeds germinate easily therefore, seed germination is the common method of propagation in worldwide. In West Bengal, Burmese grape or Latkan is conventionally propagated by seed. Attempts have been made to propagate it through vegetative means like stem cutting (Abdullah *et al*, 2005), air layering and grafting.

### Morpho- physical and biochemical properties

Number of seeds per fruit are varies from 3 - 4. The average fruit weight, peel weight is 12.75 g and 3.80 g respectively. Fruit shows around 10.5<sup>o</sup> brix TSS, 5.85 percent total sugar and 1.9 percent acidity (Bhowmick, 2010). Average yield varies from 70 – 80 kg/plant/year (Pal *et al.*, 2008). The fruits were collected from two different locations *viz.* Angarkata in Cooch Behar and Kathalbari in Jalpaiguri district.

### Value addition

The fruits can be stored about 4–5 days. Because of its little shelf life and to avoid wastage wine preparation is a good option. The Latkan wine is traditionally prepared in Malaysia and parts of India. The wine is rich in natural antioxidants which in turn can have a health benefit if consumed in limited amount (Goyal *et al.*, 2013). The peels of mature but unripe fruits yield 14.1 percent pectin and this pectin is useful in preparation of jellies and jams (Annon, 1988). The rind of the fruit can be utilized for making chutney and tastes delicious.

### Income generation

This fruit possess wide soil adaptability and grows well in shade or semi shade condition. It can be grown under backyard cultivation, where no other fruit crop can be grown successfully. In West Bengal, fruits are used for aesthetic purpose. It fetches average price of Rs. 20-30 per Kg of fruit in various markets of Cooch Behar district of West Bengal (Bhowmick, 2010). Growing this crop in the backyard may generate source of income.

### CONCLUSIONS

West Bengal is comprised of a large biodiversity and home of many tropical and sub-tropical fruits. Burmese grape which possess potential for commercial exploitation are yet to be utilized to their potential. It is an important fruit crop for backyard cultivation and intercropping with fruit crops like rambutan, mango *etc.* The scientific cultivation practices need to be developed. Hence there is a great need to explore its nutritional, medicinal and industrial importance.

### REFERENCES

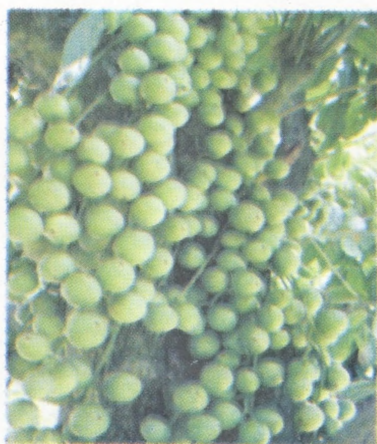
- Abdullah ATM, Hossain MA and Bhuiyan MK (2005) Propagation of latka (*Baccaurea sapida* Muell. Arg.) by mature stem cutting. Research Journal of Agricultural and Biological Sciences, 1(2):129-134.
- Anonymous (1988) *Baccaurea*. pp. 1. In: The Wealth of India- A Dictionary of Indian Raw Materials and Industrial Products, Raw *Materials*, Vol. 2B.

- Bhowmick N (2010) Latka (*Baccaurea sapida* Muell. Arg.) An underutilized fruit crop of Cooch Behar district of West Bengal, an option for income generation. *Green Technology*, Vol. 9: 64-67.
- Bhowmick N (2011) Some Lesser Known Minor Fruit Crops of Northern Parts of West Bengal. *Acta Horticulturae* No. 890.
- Goyal AK, Mishra T and Sen A (2013) Antioxidant profiling of Latkan ( *Baccaurea ramiflora* Lour.) wine. *Indian Journal of Biotechnology* Vol.12: 137-139.
- Kermasha S, Barthakur NN, Mohan NK and Arnold NP (1987) Chemical composition and proposed use of two semi-wild tropical fruits. *Food Chemistry* 26(4): 253-259.
- Pal RK, Bhowmick N and Suresh CP (2008) Latka (*Baccaurea sapida* Muell. Arg.)- An under exploited minor fruit crop of West Bengal. Abstr. In: 3<sup>rd</sup> *Indian Horticulture Congress 2008: New R & D Initiatives in Horticulture for Accelerated Growth and Prosperity*, OUAT, Bhubaneswar; 325pp.
- Peter KV (2007) Underutilized and underexploited horticultural crops, Vol 2. New India Publishing Agency, New Delhi, India.
- Sundriyal M and Sundriyal RC (2003) Underutilized edible plants of the Sikkim Himalaya: Need for domestication. *Current Science* 85 (6): 731-736.

**Figures**



Burmese Grape tree



Fruits of Burmese Grape tree



Fruit peel and pulp

**Tables****Table 1:** Physical properties of Burmese grape fruits

Physical parameters	Angarkata (Cooch Behar)		Kathalbari (Jalpaiguri)	
	Range	Mean value	Range	Mean value
Fruit weight	10.23-18.46 g	14.9 g	9.97-15.30 g	12.79 g
Peel weight	4.11-7.73 g	6.08 g	2.28-5.79 g	4.12 g
Seed weight	0.32-0.48 g	0.36 g	0.26-0.34 g	0.31 g
Fruit length	2.79-3.42cm	3.17 cm	2.59-3.22cm	2.93 cm
Fruit diameter	2.61-3.30cm	3.06 cm	2.55-3.06cm	2.80cm
Peel thickness	2.08-3.65mm	2.78 mm	1.31-2.89mm	2.25mm
Number of seeds	2-4	-	3-4	-

**Table 2:** Biochemical properties of Burmese grape fruits

Biochemical parameters	Angarkata (Cooch Behar)		Kathalbari (Jalpaiguri)	
	Range	Mean value	Range	Mean value
Total Soluble Solids (TSS)	9.4-14.2 °Brix	11.7 °Brix	9.2-12.9 °Brix	10.8 °Brix
Reducing Sugar	2.85-3.29 %	2.98 %	2.89-3.11 %	3.04 %
Non-Reducing Sugar	1.41-2.69 %	1.83 %	1.35-2.69 %	2.11 %
Total Sugar	4.26-5.98 %	4.89 %	4.24-5.80 %	5.26 %
Acidity	1.9-2.2 %	2.06 %	1.8-2.2 %	1.98 %
TSS: Acid ratio	4.95-6.45	5.56	5.11-5.86	5.39

16 FEB 2016