

## **BURMESE GRAPE-AN IMPORTANT AESTHETIC VALUE UNDERUTILIZED FRUIT CROP IN ARUNACHAL PRADESH, NORTH EAST INDIA**

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### **Abstract**

A survey was conducted in the East Siang district of Arunachal Pradesh, India during the period 2019-2020 for the documentation on the variability of *Baccaurea ramiflora* (Burmese grape) in this region. These plants are found wild or in the homestead garden. From the investigation it revealed that flowering period start from March upto April and the fruit are ready to harvest during July-August in North East condition. Fruiting habit is cauliflorous in nature having aesthetic value. However, due to unexplored this important underutilized fruit crop from commercial cultivation it needs conservation strategies for the near future.

### **Introduction**

Burmese grape (*Baccaurea ramiflora*) which belongs to the family Euphorbiaceae is native to Southeast Asia region and distributed along the sub-Himalayan tract, mainly from Nepal to Sikkim, Darjeeling hills, Arunachal Pradesh, Assam, Tripura, Bhutan, Burma, Peninsular Malaysia, Tibet ascending to an altitude of 900 m and Andaman and Nicobar Islands, most chiefly in the moist tropical forests (Anon., 1998). In East Siang district of Arunachal Pradesh it is grown as an underutilized fruit crop in evergreen forest or cultivated 1 - 2 plants in homestead garden. In other North Eastern part of India it is grown in limited scale as a minor fruit crop in the lower hills and valleys of Meghalaya, Nagaland, Manipur. In West Bengal it is mainly grown as an underutilized fruit crop under homestead cultivation in few district of the northern part of the state like Cooch Behar, Jalpaiguri, Darjeeling, Uttar and Dakshin Dinajpur districts, and some part of Dakshin 24 pgs, Howrah (Dey and Pal, 2015). It is locally known by different names as *Motok Hei* in Manipur, *Bureng* in *Adi* tribe and *Gasampe* by *Garo* tribe in Arunachal Pradesh, *Sohramdieng* by *khasi* tribe in Meghalaya and *Leteku* in Assamese language in Assam (Sigh, et al, 2017). In West Bengal it is locally known as '*Latka*', '*Latkan*', '*Lotko*' or '*Notko*' (Deb and Bhowmick, 2013).

**Uses and its medicinal value :** Fruit are used as a digestive and bark for skin disease treatment (Singh et al., 2014). Besides due to its cauliflorous bearing nature it is also grown as aesthetic value fruit tree in Arunachal Pradesh.

**Flowering and Fruiting :** *Baccaurea ramiflora* have cauliflory bearing habit in which flowers and fruits are directly coming out from trunk or old branches and flowers are appearing in clusters. Flowers are yellowish, small, dioecious, apetalous, compound into raceme panicles. Flowers start appearing from mid March and continue till mid April and fruit setting occurs during mid April in East Siang district of Arunachal Pradesh. Immature or young fruits are green in colour and it takes about 3-4 months for maturity. On maturity fruits are round to oval in shape, yellow or yellowish-brown in colour and velvety with leathery pericarp and available during July-August. The type of

fruit is berry and edible portion is aril with 3-4 seeds embedded inside pinkish-white pulp. Fruit of *Baccaurea ramiflora* have a diameter of 2-3 cm. The average number of fruits per panicle, length of panicle, fruit weight and pulp weight, seed weight is 12, 20 cm, 12 g, 4 g and 1.6 g respectively. Two types of genotype i.e. one with sweet taste fruit and another with mild acidic taste fruit is found in Arunachal Pradesh (Singh et al., 2017)

**Nutritive value :** Fruits of *Baccaurea ramiflora* has appropriate ratio of sodium and potassium which can help in the prevention of the non-communicable diseases significantly. It is also rich in iron which can help in reducing the anaemic condition which has high frequency in India (Gogoi B. 2017). Burmese grape found in Northern part of West Bengal has TSS range from 11.6<sup>o</sup>Brix to 13.1<sup>o</sup>Brix (Bhowmick et al. 2013). However, Burmese grape grown in some areas of Pasighat circle of East Siang district of Arunachal Pradesh shows the TSS (total soluble solid) range from 13<sup>o</sup>Brix to 16<sup>o</sup>Brix i.e. fruits of higher sweetness found in this region. Fruit also shows around 4 percent total sugar, 3.8 per cent reducing sugar and 2 percent acidity (Singh, et al., 2017). Average yield of fruit varies from 70 – 80 kg/plant/year (Dey and Pal, 2015). Per 100 g of fruit pulp of *Baccaurea ramiflora* contains 35.6% water, 51.9% carbohydrate, 5.58% protein, and 20.4% fibre respectively. The fruit also contain considerable amount of minerals like magnesium (504mg), potassium (730mg), phosphorous (132mg), and iron (100mg) per 100gm of fruit pulp. It has substantial amount of ascorbic acid, which adds to the property of antioxidant. (Gogoi, 2017). It has 178 mg vitamin C per 100 g of pulp (Hossain, et al., 2017). As the fruit contain adequate amount of sodium, potassium, and minerals it plays an important role in prevention of diseases like hypertension, cardiovascular diseases, chronic kidney stone formation which is related to low potassium intake, high sodium intake and low mineral density. Presence of higher amount of Mg in the fruit can help in maintaining the nerve electrical impulse and also can act as an activator for several enzymes. However, this important underutilized fruit crop remain unexplored till now from commercial cultivation and standardization for its scientific cultivation is lacking till now.

### Conclusion

Therefore, it is right time to explore the Burmese grape having aesthetic and medicinal value of such underutilized fruit crops which is hidden from mankind and documented in particulars. Besides, the study also advocates coordinated efforts among different agencies such as Government, NGOs, and research institutional for strengthening the biodiversity conservation and health care system together. These efforts may help in improvement biodiversity conservation for mankind.

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**Fig 1.** Cauliflorous bearing habit of Burmese grape having aesthetic value