

A Note on *Baccaurea courtallensis* (Muell.) Arg., (*Moottipotti*) – A Wild Edible Fruit of Western Ghats

K Joseph John¹, M Abdul Nizar¹, KC Velayudhan¹, M Unnikrishnan² and Z Abraham¹

¹ National Bureau of Plant Genetic Resources, Regional Station, Vellanikkara, Thrissur, Kerala-680 654

² Principal Scientist, Central Tuber Crops Research Institute, Sreekariyam, Thiruvananthapuram, Kerala.

Baccaurea courtallensis (Muell.) Arg. known as *Moottipotti* in Kerala occurs in evergreen and semi-evergreen forests at lower elevations in Western Ghats and bears edible fruits. Exploration and collection of the same in few pockets of Western Ghats and preliminary observation on populations and their fruit characters *in situ* indicated existence of good amount of genetic heterogeneity within the population. A preliminary attempt to establish the species outside its niche was partially successful but indicated that it may be amenable to conservation, domestication and development as a multi-purpose tree in tropics.

Key Words: *Baccaurea courtallensis*, *Moottipotti*, Multi-purpose tree, Wild edible fruit, Domestication

Baccaurea courtallensis (Muell.) Arg., belonging to the family Euphorbiaceae, provides edible fruits during lean months of rainy season to the tribal people and wild animals in southern parts of Western Ghats in India. The plants are sporadically distributed in evergreen and mixed forests at lower elevations. It is a beautiful shade-loving tree that has not yet been domesticated by humans. Its occurrence along with several other minor fruit trees in Western Ghats and Andaman Islands has been reported earlier by Joseph *et al.* (2000) and Rao *et al.* (2001) respectively. It is a wild relative of cultivated 'rambai' (*B. motleyana* Muell. Arg.) of South-east Asia. The present report pertains to the taxonomy, morphology, ecology, distribution, uses and the results of preliminary attempts for its domestication.

Loureiro (1790) established the genus *Baccaurea* under the family Euphorbiaceae. Hooker (1886) reported 29 species under the genus. Of these, 16 were treated with full and seven with partial description. Five species were imperfectly known. Chakrabarty and Gangopadhyay (1997) revised the genus in the Indian subcontinent and included four wild species. Two of them are confined to tropical Himalayas. *B. courtallensis* is endemic to Western Ghats and *B. javanica* is from Andaman and Nicobar Islands. *B. courtallensis* is known as 'Moottipotti' and 'Moottithoori' in Malayalam, 'Muttakkai' and 'Cholapuzhi' by 'Kaadar' tribe in Tamil and 'Kolukuki' in Kannada. Pleasantly acidic, sweet and pinkish white aril present in the fruit is edible during the famine stricken monsoon period for taste but never as a famine food. People from plains occasionally collect and eat its fruits. Over-ripening increases acid taste of the fruits. Fruits are eaten only when people come across the bearing

trees at the right time of ripening. Fruit rind is dried and used as a condiment in fish curry as it adds sour taste to the preparation (revealed by the 'Kaadar' tribe of Anamalais of Tamil Nadu). Usually, wild animals consume a lion's share of the produce. Besides its value as a fruit tree, it possesses a very shapely and beautiful crown and attractive seasonal flowers and fruit bunches thus presenting itself as a potential candidate for adoption as a multi-purpose avenue tree.

It is a small, beautiful, erect, evergreen tree especially at the time of flowering and fruiting. It grows to a height of 25-30 ft. with a narrow, erect and pyramidal canopy forming a third storey above the herbs and the tall bushy plants under the tall tropical trees. Its distribution is wide but occurs sparsely as isolated populations. Occasionally, plants are noticed along the seasonal or perennial streams in the mixed forests. Tree trunk has anomalous protuberances like in *Averrhoa bilimbi* resulting in trunk-flory and cauliflory at the base of female trees and upwards in male trees. Brilliantly crimson coloured flowers arise in clusters of inflorescence. The species is dioecious (Fig 1a and b) and usually both male and female trees occur in close proximity. Thus, it exhibits both cauli and ramiflory.

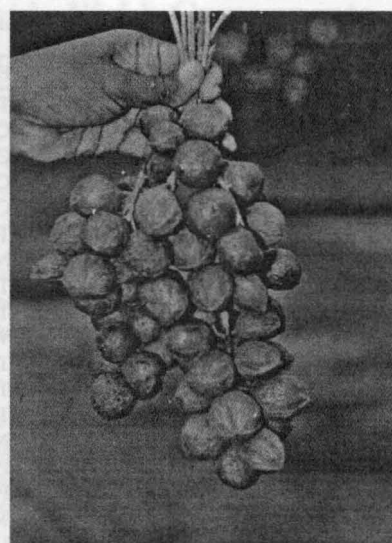
Flowering occurs during February to June and fruits ripen by May to August. Flowering trees attract swarms of common flies and fruit flies, which helps in cross-pollination. Fruiting and ripening is not very synchronous. Ripening of fruits lasts for over a month. Female flowers form a thick ring of large number of pendulous flower bunches in fascicles around the base of the trunk. At the time of fruiting it gives the appearance of a red,



(a) Female tree



(b) Male tree



(c) Ripened fruits

Fig 1: Morphology of *Baccaurea courtallensis*

crimson or purple coloured 1-2 feet wide circular pad being attached to the base of the trunk. Pendulous female inflorescences and bunches of fruits usually touch the ground. Number of fruits per bunch varies from 5-18 and bunch weight from 150-237 g. Fruit is globose to hemispherical in shape with a pointed tip (Fig 1c). Fruits have smooth or slightly terete angular rind. Size varies from 2.5 x 2.0 cm to 3.5 x 4.0 cm and the single fruit weighs from 4.0 to 22.0 g. Fruit colour varies from purple rose, light pink to crimson and deep reddish purple depending on the maturity and ripening stage. Observation on plants that occur in the Chimmini Wild Life Sanctuary of Thrissur Forest Division in Thrissur district in Kerala indicated that a small tree gave 1680 g of fresh fruits. Fruit rind weighed 910 g; seeds 200 g and the rest constituted the edible aril. A crude watery juice recovery of 623 ml/kg of fruits was obtained. Number of seeds per fruit varied from 1-3. In relation to the aril, seed weight was negligible. Seed colour also varied from light rose to pink.

A survey in Western Ghats indicated that *B. courtallensis* widely occur in evergreen forests and mixed forests in southern parts of Western Ghats especially in lower elevations in Thrissur, Wynad, Kozhikkode, Palakkad, Malappuram, Ernakulam, Idukki, Pathanamthitta, Kollam and Thiruvananthapuram districts of Kerala; Coorg, Dakshin Kannada, Uttar Kannada districts of Karnataka and Tirunelveli district of Tamil Nadu (Table 1).

Preliminary observation on natural population in Western Ghats clearly indicated that there is considerable variation in distribution pattern, canopy structure and size, flowering time, bearing time, fruit colour and taste. Considerable variation in a population of around 50 to 60 trees in one sq. km area near Chimmini dam in Thrissur district indicated the existence of genetic heterogeneity in the natural population within the locality. Plants in Kulathupuzha forest in Kollam district of Kerala also substantiate this. Thus there is ample scope for selecting promising and suitable types for domestication as a multi-purpose avenue tree for tropics.

An initial attempt to domesticate the plants in the Station's farm at Thrissur was moderately successful. During the year 1996, fresh seeds were excavated and sown in polybags filled with potting mixture and kept under the partial shade. The attempt was partially successful. Germination under the shaded condition of nursery (50% shade house) was successful. Transplanting of six one-year-old seedlings in one-foot deep pits filled with compost and topsoil under open sunlight (3) and under partial shade (3) was partially successful. Out of 6 seedlings that were planted all survived for three years under protective irrigation. However, only two seedlings of IC 202149 could survive in the open, which grew into 4 m. tall plants having a pyramidal canopy and dark green foliage.

The results of the above preliminary investigation on the natural population of *B. courtallensis* indicate

Table 1. Distribution of *Baccaurea* in Western Ghats

Place/forest area/wild life sanctuary	Forest Division	District	State	Forest type
Vellani hills	Thrissur	Thrissur	Kerala	Evergreen, mixed
Malakkappara	Chalakkudi	Thrissur	Kerala	Evergreen
Peringalkuthu	Chalakkudi	Thrissur	Kerala	Evergreen, mixed
Kollathirumedu	Chalakkudi	Thrissur	Kerala	Evergreen, mixed
Karanthode	Chalakkudi	Thrissur	Kerala	Evergreen, mixed
Chimmini	Thrissur	Thrissur	Kerala	Evergreen, mixed
Karulai	Nilambur	Malappuram	Kerala	Evergreen, mixed
Peechi	Thrissur	Thrissur	Kerala	Evergreen, mixed
Olakara	Thrissur	Thrissur	Kerala	Evergreen, mixed
Adivaram	Wynad	Wynad	Kerala	Evergreen, mixed
Kulathupuzha	Thenmala	Kollam	Kerala	Semi evergreen
Brymoor	Thiruvananthapuram	Thiruvananthapuram	Kerala	Mixed forest
Thenmala	Thenmala	Kollam	Kerala	Mixed forest
Nelliampathy	Nenmara	Palakkad	Kerala	Mixed evergreen forest
Kuriarkutty	Parambikkulam	Palakkad	Kerala	Mixed evergreen forest
Walayar	Palakkad	Palakkad	Kerala	Mixed evergreen forest
Subramanya	Mangalore	Mangalore	Karnataka	Evergreen
Hebree	Uduppi	Uduppi	Karnataka	Mixed forest
Sirsi	Sirsi	Uttar Kannada	Karnataka	Mixed forest
Kanikkatty	Tirunelveli	Tirunelveli	Tamil Nadu	Mixed forest
Anaikundishola	IG Wild life Sanctuary	Coimbatore	Tamil Nadu	Moist mixed forest

a scope for its conservation, domestication and development as a multi-purpose tree in humid tropics.

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