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MEYNA LAXIFLORA ROBYNS A POTENTIAL MULTIPURPOSE TREE: AN UNDERUTILIZED FRUIT AND MEDICINAL TREE IN MEGHALAYA

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ABSTRACT

Samatan (*Meyna laxiflora* Robyns) is an underutilized fruit and medicinal plant commonly found in natural forests and roadside in Meghalaya. The trees' habitats are the natural, evergreen and dry forests of the tropical and subtropical regions. There are 11 species of the genus *Meyna*, out M. maxiflora and M. spinosa, known to exist in the region. The two species are closely related and can be differentiated only through flower characteristics. The leaf is simple, elliptic-lanceolate in shape and glabrous on both surfaces, whereas flowers are greenish white, borne in leaf axillary, peduncled cymes arise on fascicled of leafless. Fruits are fleshy dupes, smooth globose with 4-5 one-seeded pyrenes, oblong-reniform shape, green colour at maturity and yellow-brownish at ripening. The flower appears during the month of February-March. Fruit set occurs during March-April and attain maturity and ripening during May-July. In addition to fresh consumption of fruits. In Meghalaya, the fruit is used for the preparation of wine which possesses unique flavours. However, the density of this species in Meghalaya is very low (3.7-13 per hectare). Therefore, the production technology and conservation measures of these underutilized fruits and medicinal plants must be undertaken.

INTRODUCTION

Samatan (*Meyna laxiflora* Robyns) is an underutilized fruit and medicinal plant commonly found in natural forests and roadside in Meghalaya. The trees' habitats are the natural, evergreen and dry forests of the tropical and subtropical regions. *Meyna laxiflora* Robyns is an essential minor fruit and the medicinal tree of the family Rubiaceae. The plant is reported to be native to western and northeastern India to Bangladesh (Anonymous, 2022).

NOMENCLATURE

The vernacular name of the plant varies with dialects.

Sl.No.	Vernacular name	Language/ dialects
1	Soh mon	Khasi
2	Samatan	Pnar
3	Thitchkeong	Garo
4	Kutkura, moin	Assamese
5	Heibi	Manipuri
6	Chegu gedde	Kannada
7	Chega, manga, veliki, vichikilamu	Telugu
8	Alu, Atu	Gujarati
9	Monono, Montaphoo	Uriya
10	Helu	Marathi
11	Main	Urdu
12	Bahu-vij, dal-amal, main and mayan	Hindi
13	Nagakesarah, phenil, pichuk, pindi-tak, taskar, shalya, vrishchika	Sanskrit

Source: Wikimedia Commons (2022).

HABITAT AND DISTRIBUTION

The trees are found to grow wild in the natural, evergreen and dry forests of the tropical and subtropical regions. It is distributed in northeast India, the Deccan peninsula, Konkan region, including Madh Hill of North Mumbai, North Bengal and Western Uttar Pradesh. In Khasi and Jaintia Hills, the density of *M. laxiflora* ranged from 3.7 to 13 per hectare (Suchiang et al., 2020).

GENETIC RELATIONSHIP

Earlier, *Vangueria spinosa* Fl. Br. Ind. covers a group of plants and is synonymy with *Pyrostria spinosa* (Roxb. ex Link) Miq.. However, recently the species have been classified into eleven different species of Meyna with the help of molecular phylogenetics (Anonymous, 2007.). *Meyna laxiflora* Robyns and *Meyna spinosa* Roxb.ex Link is the two species known to be found growing in India. The two species are closely related and have differences only in flowers. Flowers of *M. spinosa* Roxb.ex Link have flowers crowded into fascicles with shorter pedicels and petioles than that of *Meyna laxiflora* Robyns (Anonymous, 2007).

BOTANICAL DESCRIPTION

The plant is a large shrub while attaining tree characteristics at a lateral stage.

TREE CHARACTERISTICS

The trunk and branches of the trees are with opposite, straight (sometime 3 – nate) sharp spine (1.3-4 cm length). The bark is brown to deep grey (Plate 1a-b). The tree height is 2.5-7 m. Leaf is simple, opposite or 3-nately whorled (Plate 1c). Leaf shape is elliptic-lanceolate, acuminate at apex, cuneate at

base, and glabrous on both surfaces. The leaf sizes are 2-7 cm in width and 4-13 cm in length. The leaf petiole is 1-1.6 cm long. Leaf stipules are triangular with 2-4 mm broad and 3-5 mm long acumen.

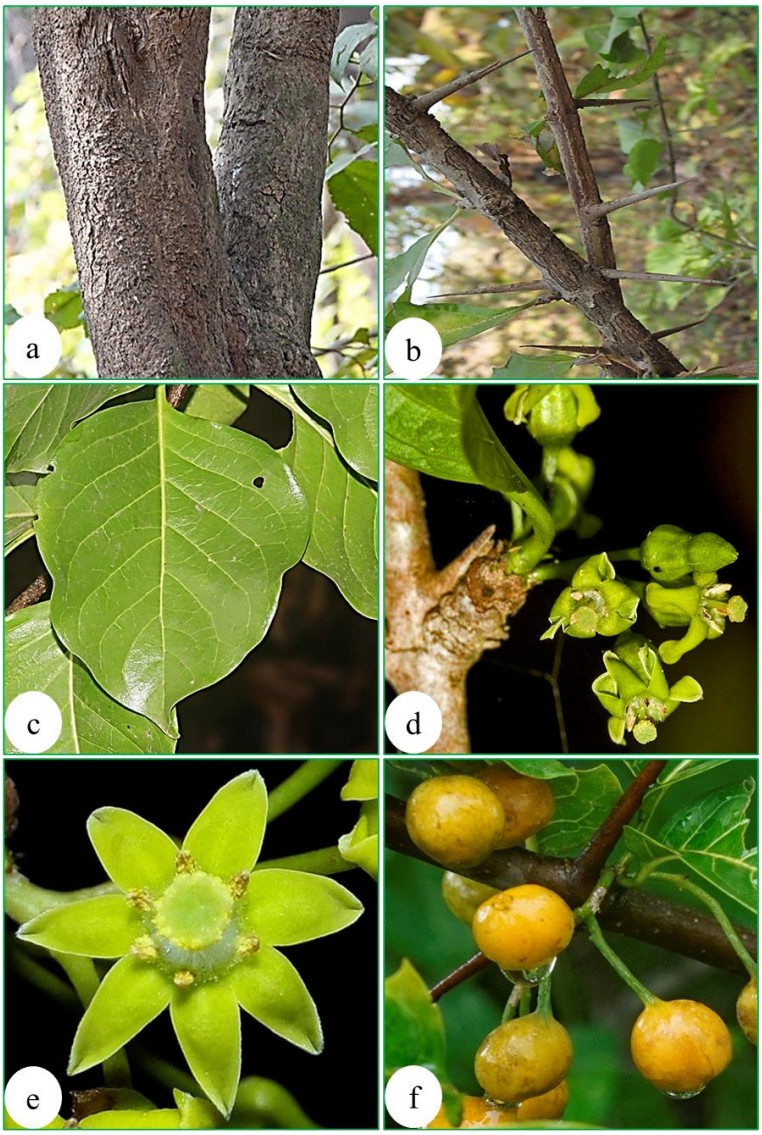

Plate 1: Photograph of different parts of *Meyna maxiflora* Robyns. a – stem and bark, b – spines, c – leaf, d – bearing habit, e – flower, f – fruits.

FLOWER CHARACTERISTICS

Flowers are greenish-white, borne in leaf axillary, peduncled cymes arise from the old scars below the leaves or fascicled on leafless wood (Plate 1d-e). Flower pedicels are 2-3 cm long. The calyx is glabrous, tube 2-3 mm long, cupular with 5 lobes, minute and triangular. Corolla is a tube with 3-4 mm long, broad, throat hairy with 5 lobes (sometime maybe 6-7 lobes), equalling the tube, ovate and acute. Stamens are 5, inserted on the throat of the corolla tube. Filaments are short. Anthers is 1 mm or little longer. Ovary is 5-

locular, with solitary pendulous ovule in each locule. The flower appears during the month of February-March.

FRUIT CHARACTERISTICS

Fruits are fleshy dupes, smooth globose with 4-5 one-seeded pyrenes, oblong-reniform shape, green colour at maturity and yellow-brownish at ripening (Plate 1f). The fruits are edible at ripening. Fruit size is 3-7 cm diameter. Fruiting pedicel is 1.6-2 cm long. Seeds are albuminous with a membranous testa. Fruit set occurs during March-April, and attain maturity and ripening during May-July.

UTILIZATION

The plant, including fruits, leaves, and bark, possesses ethnomedicinal use, as indicated in table 1. The preparation of jam from this fruit has been successfully standardized by Dhodade et al. (2019). Among the tribes of Khasi and Jaintia, fresh ripened fruits are eaten as a dessert. The ripened fruits are also used for wine preparation. The wine prepared from this fruit showed unique colour and aroma.

Table 1. Various traditional uses of *M. laxiflora*

Location/ Tribes	Treatment	Parts	Methods	References
The Chothe Tribe in the Bishnupur and Chandel districts of Manipur	Blood purification and skin texture	Fresh leaves	Use of fresh leaves as chutney	Purbashree Snglakpam et al., (2012); Yuhlung and Bhattacharyya (2014).
The Chothe Tribe in the Bishnupur and Chandel districts of Manipur	Curing constipation	Fruits	Use of fruits	Purbashree Snglakpam et al., (2012); Yuhlung and Bhattacharyya (2014).
Tribal community of Western Ghat region, Maharashtra	Narcotic and anti-dysentery	Young fruits	Use of young fruits and dried fruits as food	Deshmukh and Waghmode (2011)
Golghat, Assam	Abortifacient	Fruits	Use of fruits	Barikial and Sarma (2011)
Tinsukia, Assam	Abortifacient	Seeds	Seed paste with water through oral intake	Buragohain (2008)

Polia tribes, West Bengal	Abortifacient	Seeds and pulp	Preparation of pills made of a paste of riped fruits (seeds and pulp) mixed with 2-3 gloves of *Allium sativum* and 2.5 g of *Ferula asafoetida*). The pills were kept inside overnight to induce abortion up to 2 months of pregnancy	Mitra and Mukherjee (2009)
Meitei, Manipur	Hair	Leaves	Use leaves as an ingredient for the preparation of Chinghian herbal shampoo	Singh et al. (2014a)
Nashik, Maharashtra	Kidney stone	Seeds	Mix 5 pinches of seed powder with water and given twice a day for 15 days	Patil and Patil (2005)
Lakhimpur, Assam	Diptheria	Leaves	Use powdered leaves	Kirtikar and Basu (1975)
Lakhimpur, Assam	Snake-bite & scorpio-sting	Stem	Apply stem in combination with other drugs	Kirtikar and Basu (1975)
Meitei and Meitei-pangal, Manipur	Diabetes	Fruits	Use boiled extract of fruits	Khan and Yadava (2019)
Tribes of Tripura	Skin irritation	Tender leaves	Crush tender leaves (40-50 g) with little quantity of ginger or turmeric. Rub the paste on the infected area of the skin	Sen et al. (2011); Das et al. (2009)
Tribes of Nashik district	goitre or swellings	Leaves	Smear of fresh leaves with coconut oil by slight heating	Patil (2001)
Assam	Cure pimples	Seeds	Seed paste is applied to the skin	Buragohain and Konwar (2007)

CONCLUSION

Meyna laxiflora Robyns is underutilized fruit and medicinal species with little work that has been done on this crop. However, the uniqueness of wine flavours developed from this species may create an opportunity for its utilization in the beverage and pharmaceutical industries.

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