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Extension of distributional range of genus *Mussaenda* L. to Zunheboto district, Nagaland

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Abstract

The genus *Mussaenda* L. (Rubiaceae), with its about 200 species, is distributed in the tropics, mostly of old world. In India 14 species of *Mussaenda* has so far been reported. The present paper reports the extension of distributional of three species of the genus *Mussaenda*, Viz., *M. glabra* Vahl, *M. macrophylla* Wallich and *M. roxburghii* Hook.f. from Zunheboto district of Nagaland state for the first time.
Key words: Distributional range, *Mussaenda*, Zunheboto district, Nagaland.

INTRODUCTION

The genus *Mussaenda* L. (Rubiaceae), with its about 200 species is distributed in the tropics, mostly of old world. It is represented by 14 species in India. These species have been reported from Indo-Malaysia, extending to Philippines, Myanmar, China, Malayasia, Bangladesh, East Himalaya (Nepal – Darjeeling – Bhutan), North-East India: Mizoran, Assam, Meghalaya, Sikkim (Das *et al* 2002). The present paper reports the extension of distributional range of three species of genus *Mussaenda* L., viz., *M. glabra* Vahl, *M. macrophylla* Wallich and *M. roxburghii* Hook.f. from the Zunheboto District of Nagaland.

The Indian state of Nagaland lies between 25° 6' to 27° 4' N latitudes and 93° 2' to 95° 15' E longitudes covering an area of 16,575 sq km. It combines boundaries with Myanmar in the East, Arunachal Pradesh in the North, Manipur in the south and Assam in the West. The district Zunheboto lies between 24° 52' 30" N and 25° 10’48" N latitudes and 94° 35’58" E and 94° 20’30" E longitudes and its area is approximately 1255.00 sq km with 14.89 % forest cover. The altitude of the district varies between 900 m and 1874.22 m.

MATERIALS AND METHODS

The plants were collected from the natural vegetations in various localities of Zunheboto district of Nagaland and processed following Jain & Rao (1977). The voucher specimens are deposited in the Herbarium of the Department of Botany, Nagaland University, Lumami. The authenticity of identifications was confirmed by the matching with the specimens at the herbarium of the Eastern Circle of Botanical Survey of India, Shillong (ASSAM).

ENUMERATION

Mussaenda L. [Rubiaceae]

The genus *Mussaenda* L. belongs to the tribe Mussaendeae of Rubiaceae. Plants may be **s**hrubs or undershrubs, rarely climbing. Most of the species grow in open patches among grasses and bushes, whereas, some species climb over other shrubs and trees.

The genus is characterized by: Leaves opposite or 3-nate; stipules interpetiolar, solitary or in pairs. Flowers pentamerous in dense terminal cyme, rarely solitary; bracts and bracteoles deciduous; calyx lobes 5, usually deciduous, one frequently large leafy petioled and colored, tube oblong or turbinate; corolla rotate, usually yellow, infrequently white or scarlet, lobes 5, tube usually silky and throat villous; stamens 5 at the corolla-throat or lower down, filaments very short, anthers linear; ovary 2-celled, style filiform, stigma 2-lobed linear, ovules, numerous. Fruits berry, fleshy and areolate at top, many seeded.

Key to the species

1. Plants are shrubs; berries hairy, ——————————— ————————— 2
1a. Plants are climbing; berries glabrous, lenticellate ——————— ——— *M. glabra*
2. Stipules persistent, apressed brown villous; bracts single, lacinate; calyx teeth filiform, hairy; berries globose ———— ————-- *M. roxburghii*
2a. Stipules deciduous; bracts large and in pair, hairy, longer than ovary; berries lenticellate ————- ————— ————--- *M. macrophylla*

Mussaenda roxburghii Hook.f., Fl. Brit. India 3: 90. 1880; Fl. Assam 3: 46. 1939; Fl. Jowai 1: 236. 1981; Forest Fl. Meghalaya 2: 491. 1987; Fl. Mizoram 1: 706.2002; Persp. Pl. Biodv, 231 – 273, 2002.

Large erect shrubs; stems brown, pubescent; leaves opposite, lamina ovate-lanceolate to elliptic, acuminate, base cuneate, 9.00 – 20.5 cm x 4.5 – 8.3 cm, sparsely setulose above, pale beneath, strigose particularly along nerves, lateral nerves 8 – 13 pairs; petiole stout 0.5 – 1.3 cm long; stipules in pairs, triangular-lanceolate, 0.8 – 1.5 cm x 0.3 - 0.4 cm, bifid, adpressed villous and brown. Flowers terminal in dense corymbose cyme; bracts solitary, laciniate, pubescent. Calyx campanulate, teeth filiform, 0.8 – 1.00 cm, lanceolate, hairy, longer than ovary, persistent till fruit matured, petalloid segments 7.5 – 9.00 cm x 3.5 – 4.5 cm, white above, nerves pale green below, pubescent, stalk pale green, pubescent, 3.5 – 4.00 cm long; Corolla orange-yellow, tube narrow, pale green or greenish white, 2.7 – 3.00 cm long, lobes very small, tips filiform, silky, 0.7 – 0.9 cm in long, pubescent. Fruits berry, oblong – ellipsoid, 1.00 – 1.3 cm long, hairy, crowned with calyx lobes.

Flowering: April – July; *Fruiting*: August – November.

Mussaenda glabra Vahl, Fl. Brit. India 3: 90. 1880; Fl. Assam 3: 44. 1937; Fl. Jowai 1: 237. 1981; Forest Fl. Megehalaya 2: 491. 1987; Fl. Mizoram 1: 706. 2002; Persp. Pl. Biodv., 231 – 273, 2002.

Climbing shrubs. Stems puberulous, lenticellate, rough. Leaves opposite; lamina elliptic or oblong to lanceolate, 5.4 – 12.5 cm x 2.6 – 6.00 cm, entire, acuminate, base acute, coriaceous, lateral nerves 4 – 7 pairs, glabrous or puberulous on nerves; petioles 0.5 – 1.2 cm long; stipules interpetiolar and in pairs, small, 0.3 cm x 0.2 cm, triangular, bifid, puberulous, deciduous. Flowers in terminal puberulous cymes; bract solitary, small, subulate, pubescent, shorter than ovary, persistent after flowering; calyx campanulate, teeth subulate, 0.1cm long, shorter than ovary, deciduous, petaloid segments 7.00 – 7.6 cm x 4.00 – 6.2 cm, creamy white above, green and glabrous below, stalk 1.6 – 2.00 cm long; corolla orange yellow, pubescent, tube 1.6 – 2.5 cm long, lobes very short acute. Berries, subglobose, 1.3 cm x 0.8 cm, glabrous, lenticellate.

Flowering: May – July; *Fruiting*: August – November.

Mussaenda macrophylla Wallich, Fl. Brit. India 3: 89. 1880; Fl. Assam 3: 45. 1939; Fl. Jowai 1: 237. 1981; Forest Fl. Meghalaya 2: 490. 1987; Fl. Mizoram 1: 704. 2002; Persp. Pl. Biodv, 231-273, 2002.

Large erect or subscandent, hirsuit or villous shrubs. Stems hairy. Leaves opposite; lamina ovate elliptic or oblong lanceolate, 9.00 – 17.00 cm x 3.00 – 9.00 cm, acuminate to caudate-acuminate; base cunate, pubescent or tomentose beneath, lateral nerves 7 - 13 pair; petiole 0.8 – 2.3 cm long; stipules in pairs, interpetiolar, ovate-lanceolate, 0.4 – 0.6 cm x 0.5 – 0.7 cm, recurved, pubescent, bifid, deciduous. Flowers in short peduncled compact, trichotomous cymes, hairy; bracts in pairs, hairy, large, lacinate, longer than ovary; calyx campanulate, lobes ovate 1.2 – 1.7 cm long, longer than ovary, pubescent, deciduous, petaloid segments 5.00 – 10.00 cm x 3.00 – 4.00 cm, hairy below, nerves lines with a tinge of green, white above, stalk hairy, green 3.00 – 5.00 cm long; corolla**,** orange-red to yellow, lobes ovate, tips pointed, tube hirsute 2.4 – 3.00 cm long. Berries hairy, ±globose, 0.9 cm x 0.8 cm.

Flowering: June – August; *Fruiting*: September – December.

DISCUSSION

After thorough investigations of literature it is confirmed that the three species of the genus *Mussaenda,* Viz., *M. glabra* Vahl, *M. macrophylla* Wallich and *M. roxburghii* Hook.f. have not been reported from the Zunheboto district of Nagaland state and hence the extension of the distribution range of these species has been reported in the present investigation.

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G
D
A

B
E
H

PTSEG

PTSEG
PTSEG
F
I
C

Plate- 1. Figs. A- I, various species of genus *Mussaenda* L. showing habit, inflorescence and Petaloid Sepal. A-C. *Mussaenda roxburghii*: A. Habit; B. Inflorescence, C. Petaloid sepal; D-F. *M. glabra*: D. Habit; E. Inflorescence; F. Petaloid segment G-I. *M. macrophylla*: G. Habit; H. Inflorescence; I. Petaloid sepal. (PTSEG – Petaloid segment)

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Plate- 2, Figs. A- I, various species of genus *Musseanda* showing stipules, bracts and fruits. A- C. *Mussaenda roxburghii*: A. Stipules; B. Bracts; C. Fruits; D-F. *M. Glabra*: D. Stipules; E. Bracts; F. Fruits; G-I. *M. macrophylla* : G. Stipules; H. Bracts; I. Fruits.(BR- Bracts; FR – Fruits; SP- Sepals; ST – Stipules)