

NOTES ON THE RUBIACEAE. 4: FIVE NEW RECORDS FOR BANGLADESH

SUJIT C DAS, PRADIP K DEV AND M ATIQUUR RAHMAN*

Department of Botany, University of Chittagong, Chittagong-4331, Bangladesh

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Abstract

The occurrence of five species namely, *Mussaenda keenani* Hook. f., *Mycetia listeri* Deb, *Ophiorrhiza fasciculata* D. Don, *Psychotria stipulacea* Mail. and *Psydrax umbellata* (Wight) Bridson, of the family Rubiaceae in the flora of Bangladesh is reported for the first time. The *Psydrax* Gaertn. is also a new generic record for Bangladesh. These species are described along with their ecology, geographical distribution and places of occurrence in Bangladesh. Illustrations and photographs of these new records are also provided.

Introduction

Currently the family Rubiaceae is known to be represented in Bangladesh by a total of 165 species, 2 sub-species and 9 varieties (Khan and Rahman 1980-1981, Rahman 1999, Rashid *et al.* 1999, Mia and Rashid 2001, Das *et al.* 2002, 2004, 2009, Rahman and Das 2009, Das and Rahman 2010).

Apart from the recorded species, there are some specimens of Rubiaceae deposited in different Herbaria of Bangladesh remain unidentified. On critical examination five of them revealed to be dissimilar to any previously recorded species from the area of Bangladesh in any relevant work, such as, Roxburgh (1814, 1832), Wallich (1828-1849), Kurz (1877), Hooker (1880-1881), Prain (1903), Brandis (1906), Heinig (1925), Calder *et al.* (1926), Cowan (1928), Kanjilal *et al.* (1939), Raizada (1941), Datta and Mitra (1953), Sinclair (1956), Razi (1959), Khan and Banu (1972), Khan and Rahman (1980-81), Ghosh and Datta (1976), Ghosh (1977), Deb (1983), Mia and Huq (1986), Kumar (1987), Alam (1988), Mia and Khan (1995), Rahman and Hassan (1995), Dey *et al.* (1998), Ridsdale (1998), Rahman (1999), Rashid *et al.* (1999), Dutta and Deb (2004), Rahman (2004), Rahman and Das (2009) and Das *et al.* (2002, 2004, 2009, 2010). The genus *Psydrax* Gaertn. was not previously reported to be represented in Bangladesh by any species, hence it is a new generic record for Bangladesh.

Materials and Methods

The plant specimens were collected from different areas of Bangladesh, mainly from the forests of Bandarban, Chittagong, Cox's Bazar, Khagrachari, Rangamati and greater Sylhet districts through several field trips under Aberdeen University-Chittagong University (AU-CU) Biodiversity Link Project, and preserved at the Herbarium of Chittagong University (HCU). The specimens of the Rubiaceae available at DACB, Dhaka University Salar Khan Herbarium (DUSH) and Herbarium of Bangladesh Forest Research Institute (BFRIH) were also consulted.

The specimens were studied at the Herbarium of Chittagong University using Long Arm Stereo Microscope and identified by consulting relevant floristic literature like Hooker (1880), Prain (1903), Brandis (1906), Kanjilal *et al.* (1939), Deb (1983, 1986) and Dutta and Deb (2004). The identifications were confirmed by matching the specimens with the named herbarium specimens as well as by consulting experts of ABD, BM, CAL, E, K and L.

The photographs of fertile specimens were taken either during the field trips or from the herbarium specimens available at DACB, BFRIH, E, HCU, DUSH, K and L by using digital camera.

*Author for correspondence: <atiquerahman125@hotmail.com>

Taxonomy

Taxonomic description, illustration and photograph of each of the five new records are presented along with their ecology, geographical distribution and the occurrence in Bangladesh.

1. *Mussaenda keenani* Hook. f., Fl. Brit. Ind. 3: 87 (1880); Kanjilal *et al.*, Fl. Assam 3: 45 (1939) (Fig. 1)

Erect robust undershrub. Stem white with thick corked coating, splits longitudinally, up to 1.5 cm in diameter, pubescent above. Stipules very broadly ovate, acuminate, up to 2 cm long, leathery, hairy, erect or recurved. Petioles up to 5 cm long, very robust. Leaves obovate or oblanceolate, abruptly acuminate, sub-coriaceous, glabrous, lamina 20-31×10-13 cm, lateral nerves 15-18 on either half, sub-parallel, very prominent underneath, secondary nerves more or less sub-parallel, base narrowed into petiole or cuneate. Inflorescence dense flowered, about 8 cm across, almost capitate. Flowers orange-red, pentamerous; calyx teeth 1.5 cm long, fine, persistent; corolla nearly 2.5 cm long. Berries succulent.

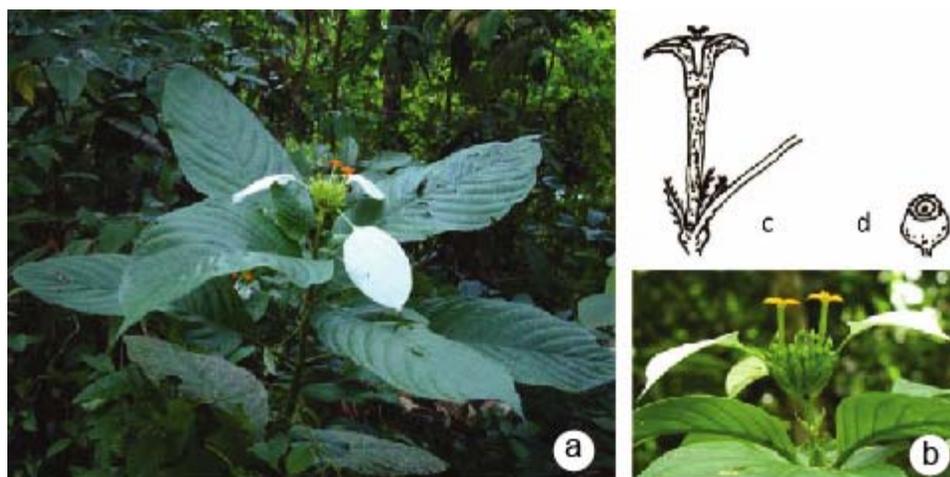


Fig. 1. *Mussaenda keenani* Hook. f. (a) habit, (b) inflorescence, (c) flower, (d) fruit.

Flowering and fruiting: June to February.

Specimens examined: Chittagong: Korerhat, Koila, Guichari, 02.07.1997, Sujit and Toha L. 1478 (HCU). Rangamati: Kaptai, Rampahar, Madhabchari, 27.10.1995, Mohiuddin and Mezan 7587 (BFRIH). Moulvi Bazar: Srimongal, Lawachora forest, 18.06.2009, Sujit L.6551 (HCU).

Ecology: Grows beside hilly slopes and plain lands in comparatively shady places.

Geographical distribution: Endemic to India and Bangladesh.

Occurrence in Bangladesh: Chittagong, Rangamati and Moulvi Bazar.

Note: The genus *Mussaenda* L. was known to be represented in Bangladesh by 8 species. This species is closer to *M. roxburghii* Hook. f. but differs remarkably for its robust habit, thickened and pubescent stem, thick and leathery leaves, long petioles and capitate inflorescence.

2. ***Mycetia listeri*** Deb in Bl. 14(1): 241, f. 1 (1966). *Adenosacme listeri* King [non Burkill] in Rec. Bot. Surv. Ind.: 10: 298 (1925) (Fig. 2)

Small shrub up to 2 m tall. Stem branched, terete, brittle, swollen at nodes, pubescent when young. Stipules interpetiolar, foliaceous, ovate-elliptic or lanceolate, obtuse, up to 1.5 cm long, puberulous, ciliate or glandular at margin. Petioles short, up to 0.8 cm long, puberulous. Leaves unequal in pairs, broadly linear, membranous, long acuminate, attenuated at base, lamina 9-28 × 0.7-3.5 cm with some intermediate ones diminutive in form, slightly falcate, unequal at base; lateral nerves 12-20 pairs, puberulous beneath. Inflorescence axillary and terminal, shorter than the leaf, di- and trichotomously branched panicle of cymes, up to 15 cm across; peduncle erect, up to 3.5 cm long; bracts deciduous, small, sometimes glandular and forming a rim-like structure. Flowers pedicellate, up to 0.8 cm long; pedicel slender, up to 4 mm long; calyx up to 0.5 cm long, lobes persistent, chartaceous, up to 0.3 cm long; corolla white, tubular, lobes densely pubescent within; stamens at the base of corolla lobes, filaments very short, anthers linear-oblong, 2-lobed; stigma 2-lobed, stigma and style up to 7.5 mm long, ovary hemispherical, 2 celled with many ovules. Berries ovoid, up to 4 mm in diameter, 2-chambered. Seeds many, minute, angled.



Fig. 2. *Mycetia listeri* Deb (a) habit, (b) inflorescence, (c) flower, (d) fruit.

Flowering and fruiting: January to June.

Specimens examined: Chittagong: Jamaichari, 17.08.1998, Rahman *et al.* 3324 (HCU). Rangamati: Kaptai, Rampahar, 05.11.1999, Rahman *et al.* 5941 (HCU).

Ecology: Grows in valley areas.

Geographical distribution: Endemic to India and Bangladesh.

Occurrence in Bangladesh: Chittagong and Rangamati.

Note: In Bangladesh, the genus *Mycetia* Reinw. was reported to be represented by 2 species (Rahman and Das 2009). *M. listeri* Deb is remarkably different from the other two species for its broadly linear and glabrous leaves. The opposite leaves on the same node are unequal.

3. ***Ophiorrhiza fasciculata*** D. Don, Prodr.: 136 (1825); Hook. f., Fl. Brit. Ind. 3: 83 (1880); Burkill in Rec. Bot. Surv. Ind. 4: 112 (1910); Kanjilal *et al.*, Fl. Assam 3: 42 (1939); Hara in Hara & Williams, Enum. Nepal 2: 206 (1979); Deb & Mondal in Bull. Bot. Surv. India. 39: 44-47 (1997). *O. mungos auct.* non L.: Roxb., Fl. Ind. 2: 544 (1824). *O. bracteolala* R. Br. ex G. Don, Gen. Syst. Gard. Bot. 3: 521 (1834). **(Fig. 3)**

Perennial herb to small shrub, 50 cm to 2 m tall. Stems erect, woody at base, branched, pubescent. Stipules 0.3-1.5 cm long, lanceolate with broad base, acute, often entire, sometimes bifid, glabrous or pubescent. Petioles up to 5 cm long, slender, pubescent. Leaves elliptic-lanceolate to ovate-lanceolate, acute to acuminate at apex, tapering at base, lamina 3-16 × 1.0-6.5 cm, glabrous or scattered short hairy above, pubescent on the nerves beneath, membranous, lateral nerves 6-16 on either side. Inflorescence of terminal and axillary cymes, fascicled, 1-5 cm across, 3-5 branched, pubescent; peduncles 1-8 cm long, elongating in fruit, slender, pubescent. Flowers 1.6-1.9 cm long, white, purple-rose or pink; bracts persistent, 0.6-1.2 cm long, lanceolate, pubescent, pinkish-red; bracteoles persistent, 0.4-0.7 cm long, narrowly lanceolate, pubescent,

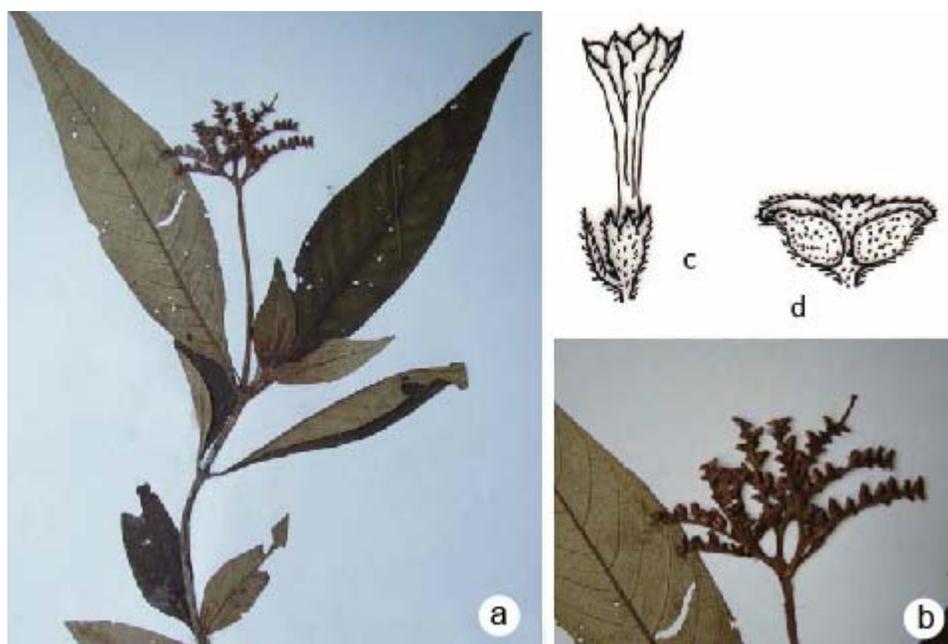


Fig. 3. *Ophiorrhiza fasciculata* D. Don (a) habit, (b) inflorescence, (c) flower, (d) fruit.

pinkish red; pedicels 1-2 mm long, pubescent; hypanthium 1.0-1.8 × 1.3-1.5 mm, obovoid, pubescent; calyx lobes 1.0-1.3 × 1 mm, ovate, acute, pubescent; corolla 1.5-1.7 cm long, infundibuliform, tube slender, puberulous outside, glabrous within, lobes 1.5-2.0 × 1.3-1.8 mm, broadly ovate-oblong, acute; stamens adnate to the base of corolla or slightly above, inserted, filaments up to 1.8 mm long, anthers up to 1.8 mm long; stigma 2-lobed, lobes lanceolate, glabrous, style up to 1.5 mm long, glabrous, ovary 1.0-1.5 × 1.0-1.3 mm, obovoid. Capsule 1.5-4.5 × 4.0-10.5 mm, pubescent, locules ovate-oblong. Seeds 0.5 × 0.3-0.4 mm, 5-6 angular, glabrous.

Flowering and fruiting: March to October.

Specimens examined: Chittagong: Dhopachari, Gondamara, 24.7.1999, Rahman *et al.* 5147 (HCU). Rangamati: Kutukchari, Chegaiya-chari, 16.06.1998, Rahman *et al.* 3139 (HCU).

Ecology: Grows on moist rocky slopes of hills.

Geographical distribution: India, Bhutan and Bangladesh.

Occurrence in Bangladesh: Chittagong and Rangamati.

Note: The genus *Ophiorrhiza* L. was reported to be represented in Bangladesh by 6 species (Rahman and Das 2009). This species differs from other previously reported species for its ovate or ovate-lanceolate calyx lobes, broadly ovate-oblong corolla lobes and pubescent capsules.

4. *Psychotria stipulacea* Wall. in Roxb., Fl. Ind., ed. Carey & Wall. 2: 164 (1832); Hook. f., Fl. Brit. Ind. 3: 167 (1880). (Fig. 4)

Erect shrub, very robust, glabrous, branches up to 2 cm diameter, soft, compressed, side branches lax, foliage reddish brown when dry. Stipules 1.5-2.0 cm long, broadly ovate, acute, often 2-fid. Petioles 2.5-3.5 cm long. Leaves very long, oblanceolate or obovate-oblong, lamina 20-36 × 7-13 cm, apex acuminate, base narrowed into the very stout winged petiole,

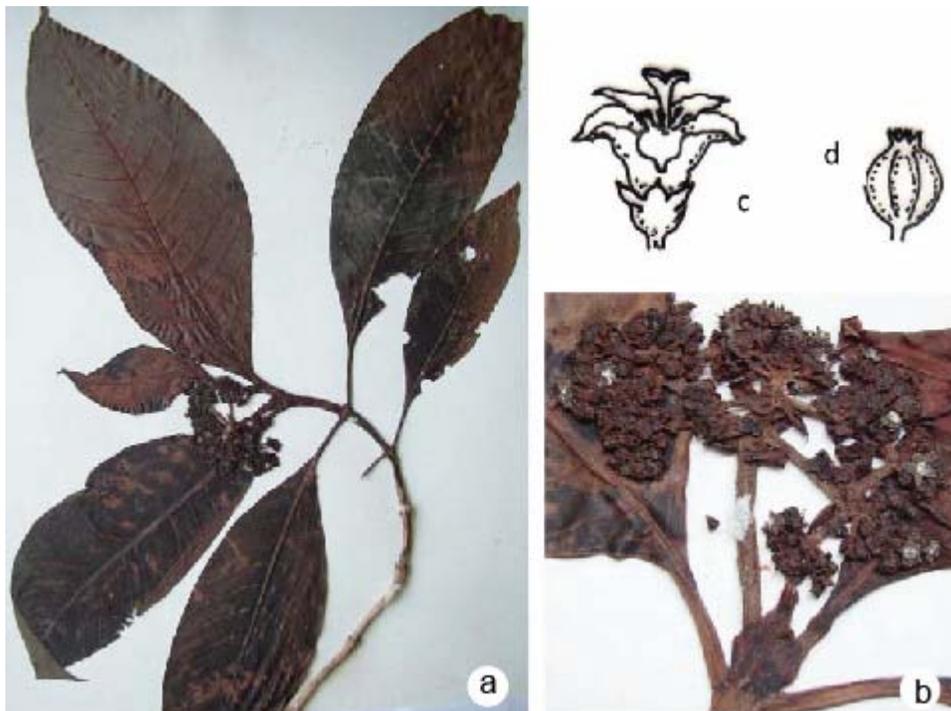


Fig. 4. *Psychotria stipulacea* Mail. (a) habit, (b) inflorescence, (c) flower, (d) fruit

nerves about 20 pairs, slender, not coriaceous. Cymes trichotomous, 5-8 cm in diameter, broader than long; peduncle and branches very stout; bracts and bracteoles triangular, upper persistent. Flowers very small, pedicelled; calyx teeth short, triangular; corolla tube up to 3 mm long, glabrous, villous within. Berries ellipsoid, deeply 4-grooved, up to 6 mm long, small calyx teeth present on fruits. Seeds ventrally concave.

Flowering and fruiting: February to June.

Specimens examined: Rangamati: Kaptai, Sita pahar, 21.03.1995, Mezanul Huq 7304 (BFRIH); Barkal, 28.04.2000, Rahman *et al.* 6016 and 6026 (HCU).

Ecology: Grows on hilly slopes.

Geographical distribution: Endemic to India and Bangladesh.

Occurrence in Bangladesh: Rangamati.

Note: The genus *Psychotria* L. was reported to be represented in Bangladesh by 10 species and 1 variety (Rahman and Das 2009). *P. stipulacea* Wall. is distinct from all other previously reported species for its robust habit, stout and winged petioles and deeply 4-grooved fruits.

5. ***Psydrax umbellata*** (Wight) Bridson, Kew Bull. 48(4): 762 (1993). *Canthium umbellatum* Wight, Icon Pl. Ind. Orient. (Wight): t. 1034 (1852). *C. umbellatum* Korth., Ned. Kruidk. Arch. 2(2): 235 (1851). *C. didymum* Benth. & Hook.f. in Bedd. Fl. Sylv. t: 221 (1864). *Plectronia didyma* Brand., Ind. Trees.: 276 (1906). **(Fig. 5)**

Evergreen large unarmed shrub or small tree, up to 15 m tall, all parts quite glabrous and glossy. Stipules usually narrowly triangular to subulate. Petiole up to 2 cm long. Leaves elliptic to oblong-lanceolate, lamina 5-10 × 2-5 cm, apex bluntish acuminate, base acute, entire, coria-

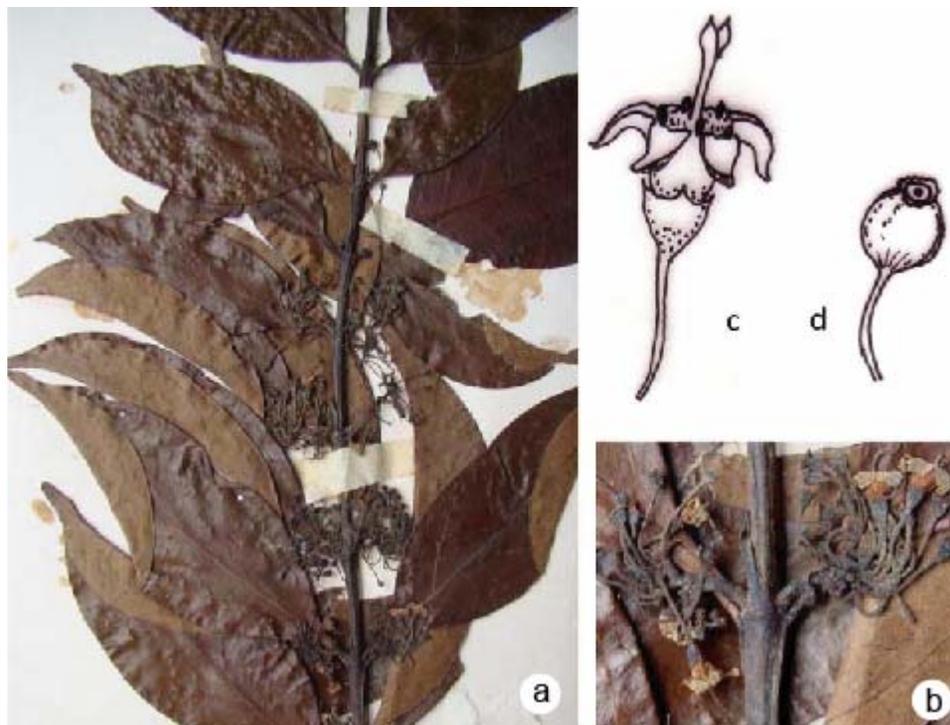


Fig. 5. *Psydrax umbellata* (Wight) Bridson (a) habit, (b) inflorescence, (c) flower, (d) fruit.

ceous, glossy. Inflorescence axillary, sessile or pedunculate cymes. Flowers 4- or 5-merous; calyx broad, lobes usually truncate, dentate or deltoid to triangular; corolla tube cylindrical, hairy inside, usually in a ring, rarely glabrous, lobes reflexed, valvate in bud; stamens inserted within

the throat; stigma cylindrical, longer than wide, capitate, apex bifid or cleft, style glabrous, longer than the corolla tube, ovary 2-locular, ovules 1 per locule, pendulous. Drupes didymous, elliptically obovate, glabrous, the size of a large coffee-bean, crowned by the scar of the calyx limb.

Flowering and fruiting: September to December.

Specimens examined: Chittagong: Bomariaghona, 11.05.1961, D. K. Das *s.n.* (BFRIH, L, K, CAL). Sylhet: Tamabil, 29.04.1981, Huq, Rahman & Mia H 5038 (DACB).

Ecology: Grows on hilly slopes and valleys.

Geographical distribution: Africa, India, Sri Lanka, Bangladesh, Myanmar, Indonesia, Thailand, Malaysia, Pacific islands and Western Peninsula.

Occurrence in Bangladesh: Chittagong and Sylhet.

Note: The genus *Psydrax* Gaertn. was not previously recorded from Bangladesh (Rahman and Das 2009). Hence it is a new generic record for Bangladesh.

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