

A TAXONOMIC ACCOUNT OF *LUISIA* GAUD. (ORCHIDACEAE) FROM BANGLADESH¹

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(With four text-figures)

Key words: Taxonomy, *Luisia*, Orchidaceae, Bangladesh

The genus *Luisia* Gaud. of the family Orchidaceae is represented in Bangladesh by seven species, out of which *L. grovesii* Hk. f., *L. trichorhiza* Bl. and *L. zeylanica* Lindl. are recorded for the first time in Bangladesh. A key to the species has been given.

INTRODUCTION

The name *Luisia* was erected in honour of Don Luis de Torres, a Spanish botanist of the 19th century. The genus is closely allied to genus *Vanda* and the species are commonly known as Bee Orchids. The genus consists of about 30 species, distributed in Tropical Asia, Japan and Polynesia (Airy-Shaw 1973, Hunt and Grierson 1973). Hooker (1890) reported 13 species from British India. Grant (1895), Prain (1903) and Bruhl (1926) recorded five species each from Burma (Myanmar), Bengal and Sikkim respectively. Santapau and Kapadia (1966) and Banerji (1982) reported only three species from Bombay and Nepal respectively. On the other hand, at least 12 species have been reported by Bose and Bhattacharjee (1980) and seven species by Pradhan (1979) from India. Within the political boundaries of Bangladesh, four species (*L. teretifolia* Gaud.; *L. Brachystachys* Bl. Rumph.; *L. filiformis* Hk.f. and *L. volucris* Lindl.) were reported by Hooker (1890) from Sundarbans, Sylhet and Chittagong. Heinig (1925) and Sinclair (1955) reported *L. teretifolia* Gaud. and *L. volucris* Lindl. from Chittagong Hill Tracts and Collectorate, and Cox's Bazar, respectively. This work aims at studying the genus comprising seven species, including the earlier reported four species, along with three

additional species viz. *L. grovesii* Hk. f., *L. trichorhiza* Bl. and *L. zeylanica* Lindl., recorded for the first time in Bangladesh.

The herbarium and live specimens are housed at the Botany Department and Orchidarium of Chittagong University, Chittagong, Bangladesh.

KEY TO THE SPECIES OF *LUISIA*

1. Petals much longer than the sepals; lip usually 8-9 mm long 2
- Petals slightly longer than sepals; lip usually 6-7 mm long 3
2. Petals dilating to rounded tip *L. volucris*
- Petals not dilating to rounded tip .. *L. grovesii*
3. Dividing line between hypochile and epichile indistinct, the epichile not suddenly widening at base *L. brachystachys*
- Dividing line between hypochile and epichile distinct, the epichile suddenly widening at base 4
4. Leaves secund, long and thin *L. filiformis*
- Leaves not so 5
5. Epichile reniform without any distinguishable apex. *L. teretifolia*
- Epichile triangular - cordate 6
6. Epichile less than 5 mm long *L. zeylanica*
- Epichile more than 5 mm long *L. trichorhiza*

1. *Luisia volucris* Lindl. Fol. Orch. 1, 1853; in Hk. f., Fl. Brit. Ind., 6: 25 (1890); Prain, Beng. Pl., 2: 765 (1903); Bruhl, Orch. Sikkim, 122 (1926); Pradhan, Ind. Orch., 2: 534 (1979).

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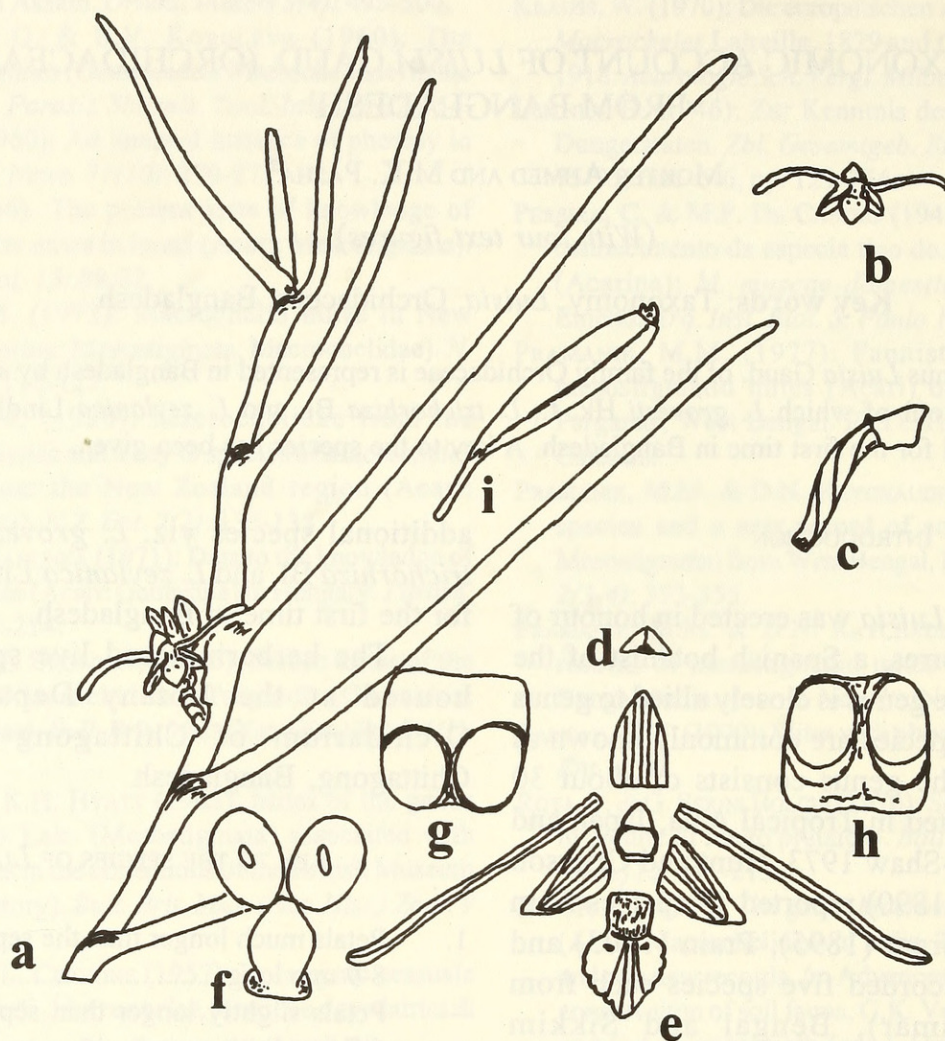


Fig. 1: *Luisia grovesii* Hk. f.: (a) habitat sketch (x 1); (b) flower from front (x 1); (c) pedicellate ovary with column from side (x 2); (d) floral bract (x 2); (e) sepals, petals and lip spread out, column from inside (x 2); (f) pollinia attached with strap (x 10); (g) operculum from front (x 10); (h) operculum from inside (x 10); (i) capsule (x 1).

Diagram reduced by one-third

According to Hooker (1890) "the flowerless specimens closely resemble *L. teretifolia*, the drawing of the Chittagong plants. The stem is slender, the internodes are 3.0 cm and leaves 14.0 - 18.0 cm instead of 6.0 - 10.0 cm, the petals not dilated at the tip instead of dilating to the rounded tip, and the epichile of the lip green and grooved". On the other hand, specimens from Khasi and Jaintia Hills reported by Pradhan (1979) are linear, dilating to a rounded tip of petals.

Geographical distribution: Sikkim Himalaya, Khasi Hills., Sylhet and Chittagong.

Specimens examined: Sikkim, J.D.H.;

Khasi Hills and Sylhet, Lobb., J.D.H. and T.T.; Chittagong, Prain.

2. *Luisia grovesii* Hk. f., Fl. Brit. Ind., 6: 25 (1890); Hooker, Cent. Ind. Orch., pt. 53, 35 (1895) (Fig. 1).

This species closely matches with Hooker's (1890) descriptions and Hooker's (1895) drawings. After critical study of the living specimens we also conclude that it is closely related to *L. filiformis* and *L. volucris* but at once distinguishable by the long petals with the former and having narrow linear-obtuse petals without dilated tip as in the latter.

Flowering scape initiation: Late February;

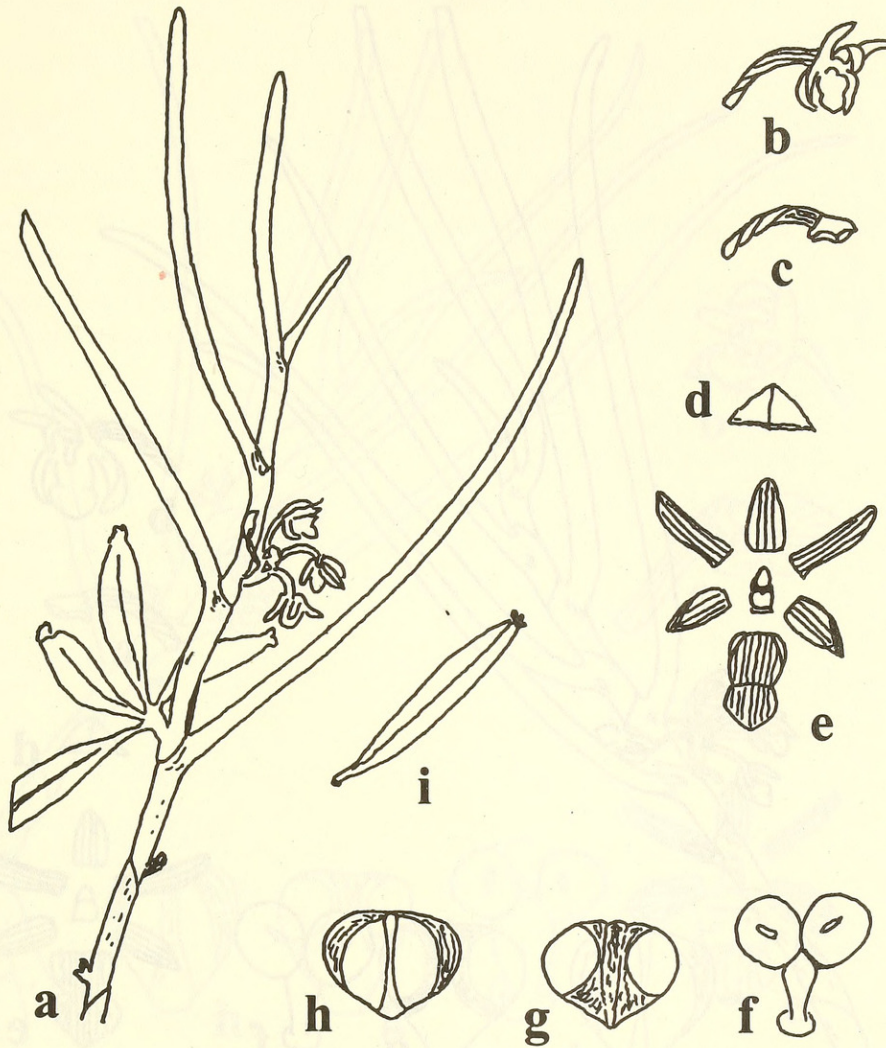


Fig. 2: *Luisia teretifolia* Gaud.: (a) habit sketch (x 1); (b) flower from front (x 2); (c) pedicellate ovary with column from side (x 2); (d) floral bract (x 4); (e) sepals, petals and lip spreadout, column from inside (x 2); (f) pollinia attached with strap (x 10); (g) operculum from front (x 10); (h) operculum from inside (x 10); (i) capsule (x 1).

Diagram reduced by one-third

Flowering: Mid March - mid June; Fruiting : June onwards.

Geographical distribution: Eastern Bengal and Bangladesh.

Specimen examined: Cox's Bazar district: Ramu, Panerchara, 13.x.1986, Mokter 39.

3. *Luisia brachystachys* Bl., Rumphia, 4: 50, 1848; Hk. f., Fl. Brit. Ind., 6: 23(1890); Prain, Beng. Pl. 2: 765 (1903). Syn. Lindl., Fol. Orch. 3, 1853, *Mesoclastes brachystachys* Lindl., in Wall Cat., 1994.

Leaves 5.0-15.0 cm long, slender; sepals and petals as in *L. teretifolia* as the species observed by Hooker (1890). He also noted that it

was a more slender plant than *L. teretifolia*, perhaps a variety.

Geographical distribution: Tropical Western Himalaya; Tenasserim; Khasi Hills; Northeastern Bangladesh.

Specimen examined: Garhwal, Falconeri; Kumaon, Stewart; Sylhet and Khasi Hills, Wallich; Bengal, Clark; Sundribuns, Prain.

4. *Luisia filiformis* Hk.f., Fl. Brit. Ind., 6: 23 (1890); Pradhan, Ind. Orch., 2: 537(1979); Bose and Bhattacharjee, Orch. Ind., 364 (1980).

According to Hooker (1890), the petals of this species are hardly longer than the sepal, except the short linear petals. This species

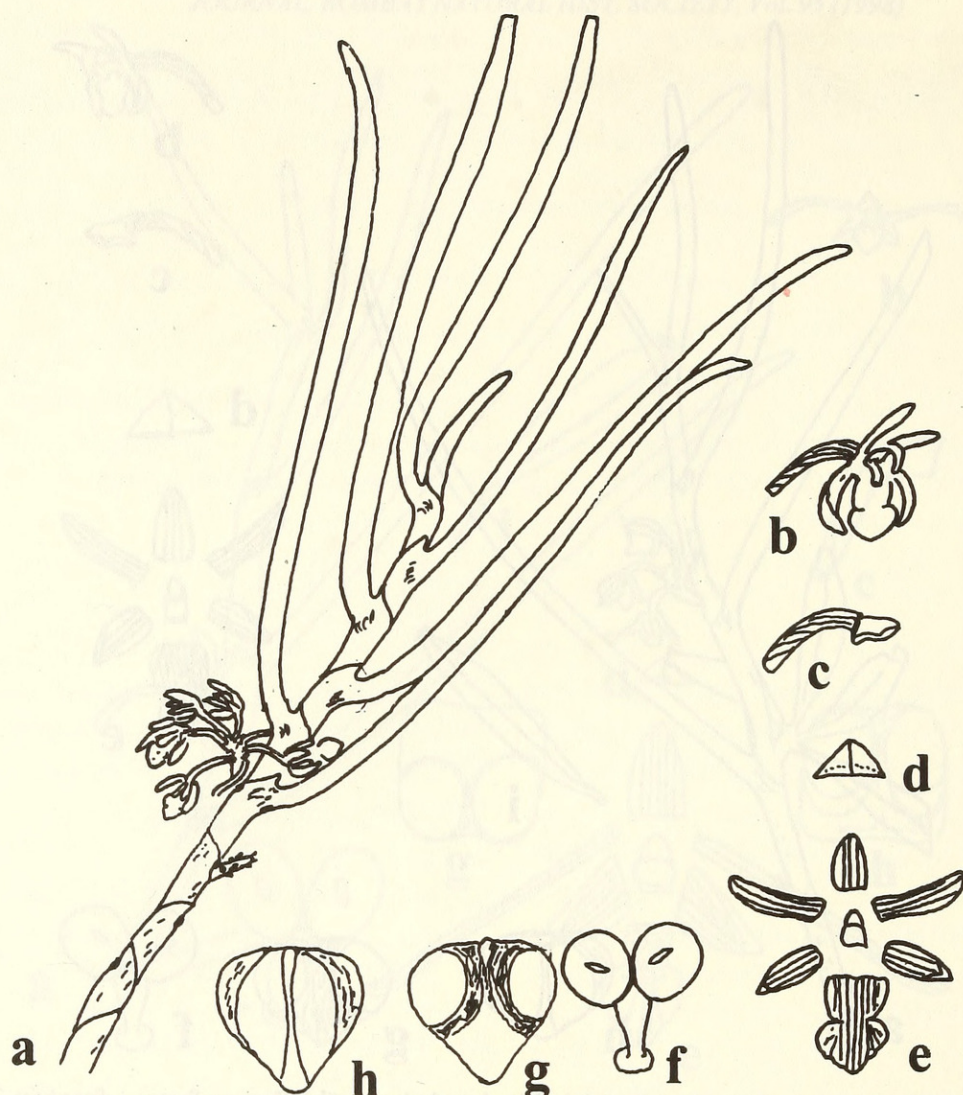


Fig. 3: *Luisia zeylanica* Lindl.: (a) habit sketch (x 1); (b) flower from + front (x 2); (c) pedicellate ovary with column from side (x 2); (d) floral bract (x 50); (e) sepals, petals and lip spreadout, column from inside (x 2); (f) pollinia attached with strap (x 10); (g) operculum from front (x 10); (h) operculum from inside (x 10).

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resembles *L. grovesii*. On the other hand Pradhan (1979) showed that the petals are equalling sepals at first but turn shorter and spatulate later on.

Geographical distribution: India, Sikkim, Myanmar, Thailand, Laos and Bangladesh.

Specimen examined: Sylhet, at Terrya Ghat, Mann.

5. *Luisia teretifolia* Gaud., Bot. Freye. Voy. 427, t. 37(1826); Hk. f., Fl. Brit. Ind., 6: 22(1890); Grant, Orch. Burma, 236 (1895); Prain, Beng. Pl., 2: 765 (1903); Heinig, Fl. Ctg. Hill Tracts and Coll., 1261 (1925); Bruhl, Orch. Sikkim, 123 (1926); Sinclair, Fl. Cox's Bazar, 108 (1955); Santapau and Kapadia, Orch.

Bomb., 213 (1966) Bose and Bhattacharjee, Orch. of Ind. 366 (1980) Banerji, Orch. Nepal, 119 (1982). Syn. *Cymbidium triste* Roxb., Hort. Beng., 63 (1814), nom. nud.; *C. tenuifolium* Wight, Icon., 5: t. 1645 (1851); *Luisia truncata* Blatt. and McC JBNHS 35: t. 9, 491 (1932) (Fig. 2).

Hooker (1890) observed that the petals vary in length and form, but never much exceed the sepals. He noted that in five Indian drawings the lip is purple and in Griffith's figures it is shown as green with black purple blotches. On the other hand, Bruhl (1926) and Prain (1903) mentioned in their descriptions that the lip is purple,

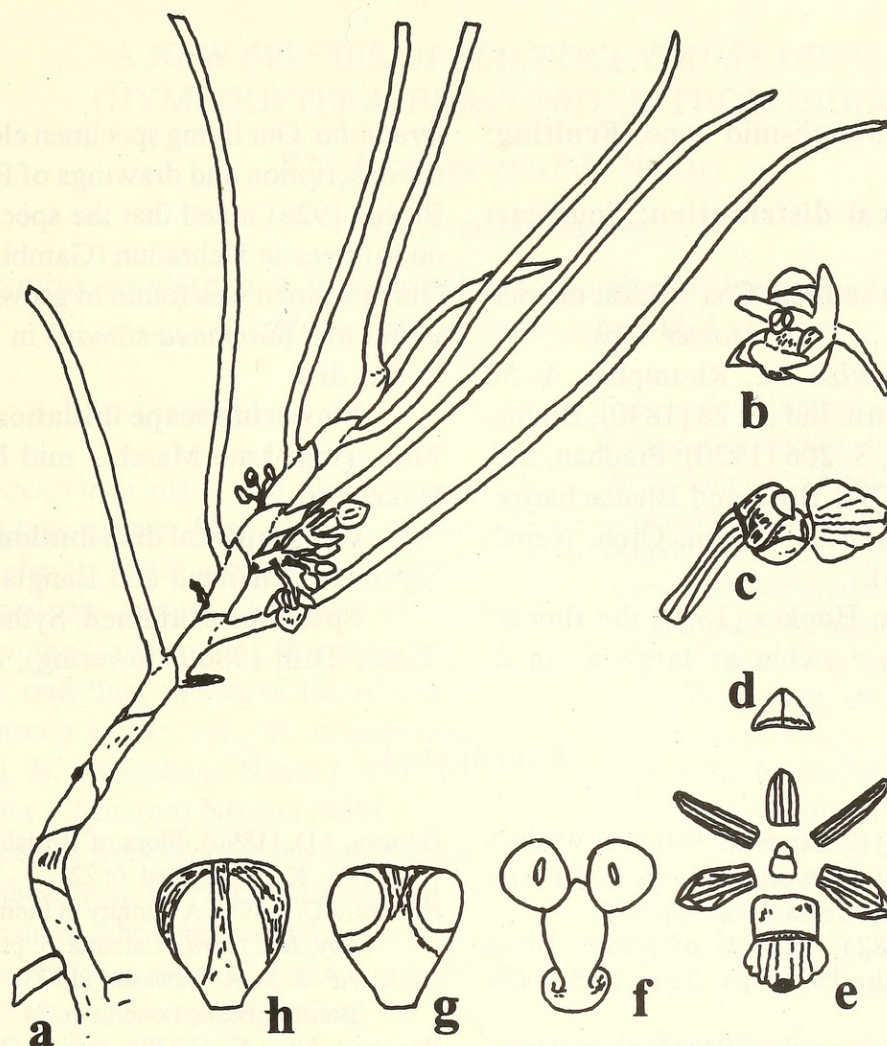


Fig. 4: *Luisia trichorhiza* Bl.: (a) habit sketch (x 1); (b) flower from + front (x 2); (c) pedicellate ovary, column and lip attached (x 3); (d) floral bract (x 3); (e) sepals, petals and lip spreadout, column from inside (x 2); (f) pollinia attached with strap (x 10); (g) operculum from front (x 10); (h) operculum from inside (x 10).

Diagram reduced by one-third

rhomboid; sepals and petals green. Our specimens closely match with the latter. This species is very common and abundant, especially in the eastern part of Bangladesh.

Flowering scape initiation: Mid March;

Flowering: Early April - mid May; **Fruiting:** May onwards.

Geographical distribution: Sri Lanka, India, Sikkim, Myanmar, Java, China and Bangladesh.

Specimens examined: Cox's Bazar district: Ukhia, Maricha Bazar, 11.x.1986 (Fruiting), *Mokter* 1(a); Ramu, Panerchara, 13.x.1986, *Mokter* 38; Tangail dist.: Baderbaith,

Madhupur, 8.iii.1990, *Mokter* 171; Khulna dist.: Sunderbans, 22.vii.1990, *Mokter* 197.

6. *Luisia zeylanica* Lindl., *Fol. Orch.* 3, 1853; Pradhan, *In: Ind. Orch.*, 2: 537 (1979). (Fig. 3)

This species is allied to *L. teretifolia*, but differs in having the lip deep purple; epichile ± dentate, deflexed, cordate-triangular and having larger flowers. Our specimen closely resembles Pradhan's description. It was found fruitless in the natural habitat as well as in the Orchidarium, whereas fruiting was commonly observed in *L. teretifolia*.

Flowering scape initiation: Late February;

Flowering: Mid March-mid June; **Fruiting:** Unknown.

Geographical distribution: Southeast Asia.

Specimen examined: Cox's Bazar district: Maricha Bazar, 11.x.1986, *Mokter* 1(b).

7. *L. trichorhiza* Bl., Rumphia, 4: 50 (1848); Hk. f., Fl. Brit. Ind., 6: 23 (1890); Duthie, Fl. Upp. Gang. Pl., 3: 206 (1920); Pradhan, Ind. Orch., 2: 538 (1979); Bose and Bhattacharjee, Orch. Ind., 368 (1980); Banerji, Orch. Nepal, 119 (1982) (Fig. 4).

According to Hooker (1890) the flowers of this species are twice as large as in *L.*

teretifolia. Our living specimen closely resembles the description and drawings of Pradhan (1979). Bruhl (1926) noted that the species is epiphytic on sal trees in Dehradun (Gamble, Mackinnon). Our specimen was found to grow on the trunk of a rain tree (*Samanea saman*) in Lama Bazar of Sylhet dist.

Flowering scape initiation: Early March; **Flowering:** Late March - mid May; **Fruiting:** Unknown.

Geographical distribution: India, Sikkim, Myanmar, Thailand and Bangladesh.

Specimen examined: Sylhet district: Lama Bazar, 21.iii.1986 (Flowering), *Mokter* 102.

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