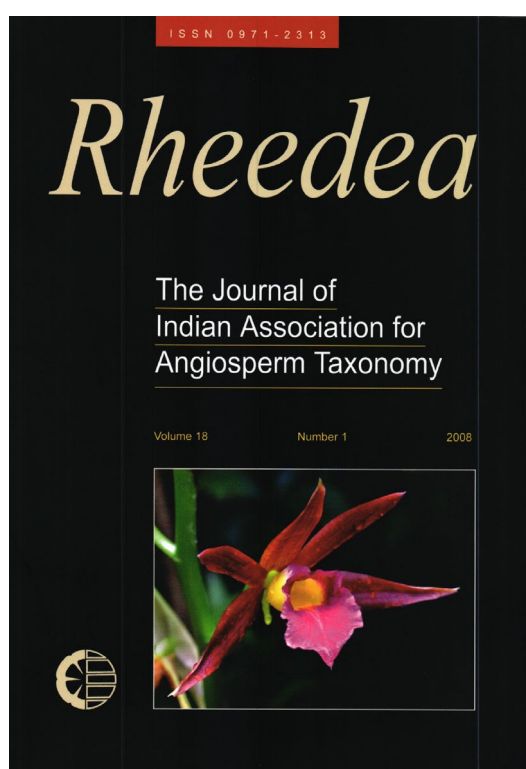




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Orchidaceous Additions to the Flora of Myanmar 2

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Abstract

Continued herbarium and literature studies of the orchids of Myanmar have revealed one new genus and 17 new species records. Three species (*Bulbophyllum burkillii* Gage, *Eulophia burmanica* Hook. f. and *E. lachnocheila* Hook. f.) are found to be synonyms with the earlier proposed entities, viz.: *Trias oblonga* Lindl., *Eulophia macrobulbon* (Par. & Rchb. f.) Hook. f. and *E. herbacea* Lindl. respectively. One new species, *Dendrobium hkinhumense* is described.

Keywords: Myanmar, New Records - One genus, 17 species, One new species

Introduction

Since we published the first part of this paper (Ormerod & Sathish Kumar 2004), a few other works relevant to the orchid flora of Myanmar have come out. The first of these are two small colour photo booklets written anonymously for the Department of Botany, University of Yangon, Myanmar (Anonymous 2003, 2004). Most of the species illustrated are also common to Thailand and have, thus, been previously depicted in various Thai orchid books (e.g. Vaddhanaphuti 2001). According to Saw Lwin, in the introduction of volume one, there are 841 species of orchids in Myanmar. At the moment we believe such a figure cannot be substantiated (see discussion below).

The second one is a proposed five volume series with three volumes published so far (Tanaka *et al.* 2003, 2004; Tanaka & Yee 2007). Once again mostly common species are illustrated but the series is bolstered by many photographs of orchids in their natural habitat. The third work is a checklist of the trees, shrubs, herbs and climbers in Myanmar (Kress *et al.* 2003). The checklist enumerates 735 orchids with several unvouchered new generic and species records. Our own studies show that at least 53 names should be deleted from the checklist since some of these are cultivated plants, duplications,

misidentifications, unpublished names or non-orchidaceous plants. Thus, the checklist contains 682 acceptable entries of orchids distributed in 124 genera.

In comparison to the checklist of Kress *et al.* (2003) our own enumeration of Myanmar orchids so far comprises 749 species distributed in 148 genera.

New Species

The genus *Dendrobium* Swartz currently has about 115 species in Myanmar, compared to about 160 species in neighbouring Thailand. Thus, we expect several more species from Myanmar. Apart from the novelty described below, we have also seen what appears to be two other undescribed taxa belonging to section *Stachyobium* Lindl.

Dendrobium hkinhumense Ormerod *et* Sathish Kumar, *sp. nov.* **Fig. 1**

Affinis *D. bicameratum* Lindl. sed labello floribus unguiculatis (non late cuneatis), lobis lateralibus late obtusis (non subacutis ad angusta obtusis) et epichilo labello obsolete (non semicircularis productis) differt.

Type: MYANMAR, North Triangle (Hkinhum), 1370 m, 21-07-1953, Kingdon Ward 21198 (Holotype, BM!).

Epiphytes. Stem terete, leaves a few, 30 cm or more long, 0.2-0.5 cm thick, upper half with several rooting branchlets or keikis having narrowly clavate-fusiform stems; internodes 3.3-3.7 cm long, decreasing to 0.7 cm long or less near the apex. Leaves oblong-lanceolate, obtuse to subacute, shortly contracted basally, 2.5-5.9 cm long, 0.4-0.6 cm wide. Inflorescences in upper half of stem weakly fractiflex, up to five

callus 1.5 mm long; column erect, 1.5 mm long; columnfoot at right angles with the ovary, c. 3 mm long.

Distribution: Myanmar.

Note: This new species of section *Breviflores* Hook. f. is closely related to *D. bicameratum* Lindl. but can be distinguished from it in having white or sometimes

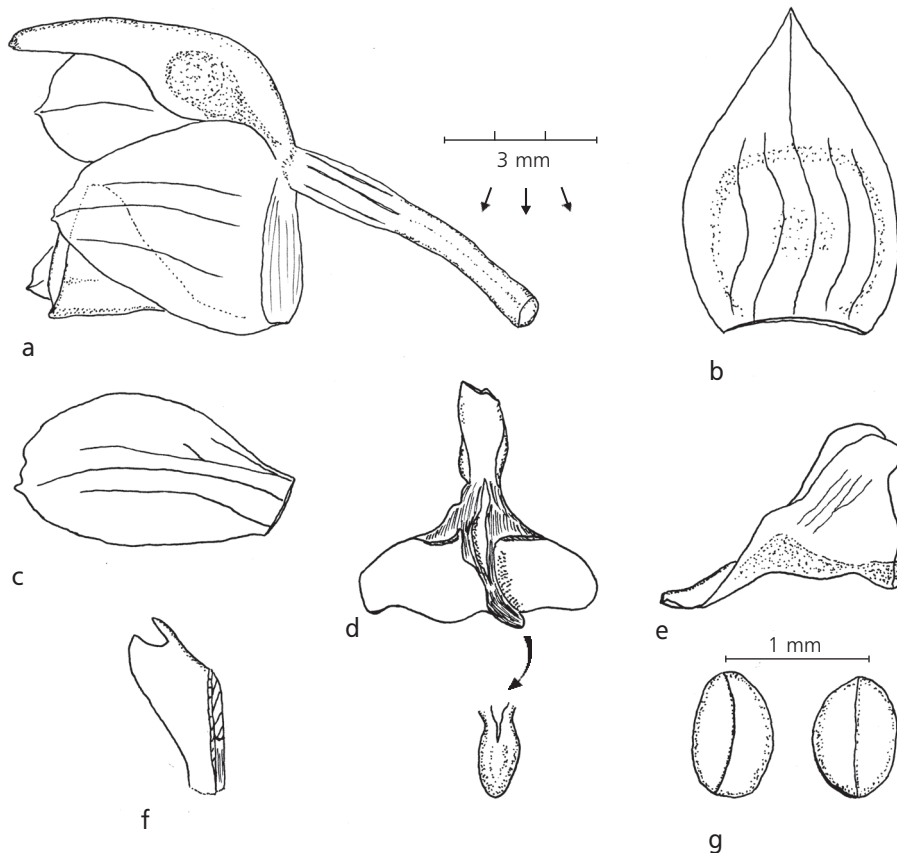


Figure 1. *Dendrobium hkinhumense* Ormerod et Sathish – a. Flower; b. Dorsal sepal; c. Petal; d. Lip - front view; e. Lip - side view; f. Column; g. Pollinia.

flowered, to 6 mm long; floral bracts oblong-lanceolate, acute, 5 mm long, 1.5 mm wide. *Pedicellate ovary* subterete, 6 mm long. *Flowers* white, sometimes purplish; dorsal sepal broadly ovate, deeply concave-cymbiform, acute, 6 mm long, 4 mm wide; lateral sepals broadly ovate, acute, 6 mm long, 4.5 mm wide, forming with the columnfoot a mentum 3.2 mm long; petals obliquely elliptic, apiculate, 5 mm long, 3 mm wide; labellum flabellate-T-shaped, more or less truncate, 5 mm long (claw 2 mm long, lamina 3 mm long), 5.5 mm wide, junction of the claw and lamina with a thick bicarinate callus spreading onto the lateral bases of the lamina, the two keels of the callus uniting apically into a glossy ellipsoid apical callus,

purplish flowers, a clawed lip with broadly obtuse sidelobes and an obsolete midlobe. In *D. bicameratum* flowers are greenish with red-brown spots, the lip has a broad cuneate base and has subacute to narrowly obtuse sidelobes with a distinct semicircular midlobe.

Enumeration of New Records

Cleisostoma fuerstenbergianum Krzl., Rep. Sp. Nov. Regn. Veg. 7:39, 1908.

This species was described from material cultivated by von Fuerstenberg in Germany. It is one of the most

commonly collected Thai species and thus may occur in Myanmar.

Occurrence: Kalaw, 04-1932, *Dickason 1026* (AMES).

Distribution: China, Laos, Vietnam, Cambodia, Thailand, Myanmar.

Epigeneium fuscescens (Griff.) Summerh., *Kew Bull.* 12:262, 1957. *Dendrobium fuscescens* Griff., *Notul. Pl. Asiat.* 3:308, 1851.

Griffith (1851a, b) described and illustrated this species based on his own collections (now in K!) from Churra (Churra Punje) in the Khasia Mountains of Meghalaya. Later, King and Pantling (1898) illustrated a different species from Sikkim under the name *Dendrobium fuscescens*. This misidentification led Balakrishnan and Chowdhury (1966) to describe *Katherinea navicularis*, which is a synonym of the true *Epigeneium fuscescens*.

Occurrence: Valley of the Seinghku, 1830 m, 26-10-1926, *Kingdon Ward 7623* (K).

Distribution: NE India, Bhutan, SW China, Myanmar.

Epigeneium treutleri (Hook. f.) Ormd., *Oasis* 1, 3:3, 2000. *Coelogyne treutleri* Hook. f., *Fl. Brit. Ind.* 5:837, 1890.

This plant was based on Treutler's collection from Sikkim. King and Pantling (1898) then confused the species with *Dendrobium fuscescens* Griff., an entity that does not occur in Sikkim. Balakrishnan and Chowdhury's (1966) figure called *Katherinea fuscescens* (Griff.) A.D. Hawkes is referable here to *Epigeneium treutleri*. We have further seen two collections of *E. treutleri* from Bhutan [*Ludlow & Sherriff 1068* (BM); *Ludlow, Sherriff & Hicks 21256* (BM)], which are new records for the country. These were listed as *E. fuscescens* by Pearce & Cribb (2002).

Occurrence: N Triangle, Tama Bum, 2125-2440 m, 11-10-1953, *Kingdon Ward 21446* (BM); Valley of the Seinghku, 2125 m, 27-10-1926, *Kingdon Ward 7626* (K).

Distribution: NE India, Bhutan, SW China, Myanmar.

Goodyera fusca (Lindl.) Hook. f., *Fl. Brit. Ind.* 6:112, 1890. *Aetheria fusca* Lindl., *Gen. Sp. Orch. Pl.*:491, 1840.

Lindley based this species on collections by Royle and Wallich from northern India. Pearce and Cribb (2002) list it from Myanmar based on the unpublished specimen cited below.

Occurrence: W flank of the N'mai Kha-Salwin Divide, 3255 m, 10-1925, *Forrest 27452* (K).

Distribution: Nepal, N India, Bhutan, SW China, Myanmar.

Goodyera viridiflora (Bl.) Lindl. ex D. Dietr., *Syn. Pl.* 5:165, 1852. *Neottia viridiflora* Bl., *Bijdr.*:415, 1825.

Originally described from Java, this species is a widespread entity found throughout SE Asia and Malesia and thus it is expected to occur in Myanmar.

Occurrence: Valley of the Nam Tamai, 1220-1525 m, 11-09-1926, *Kingdon Ward 7396* (K).

Distribution: NE India, Nepal, SE Asia, Malesia, NE Australia, New Caledonia.

Gymnadenia orchidis Lindl., *Gen. Sp. Orch. Pl.*:278, 1835.

Lindley based this species on collections in Wallich's herbarium from northern India. The specimen from Myanmar represents a new generic record for the country.

Occurrence: Adung Valley, 3660 m, 07-1931, *Kingdon Ward 9741* (AMES).

Distribution: Nepal, India, Bhutan, China, Myanmar.

Habenaria humistrata Rolfe ex Downie, *Bull. Misc. Inf. Kew*:419, 1925.

This plant was based on a Kerr collection from Doi Suthep, Thailand. We cite only one collection here which is identical to Seidenfaden's drawing (1977) showing amongst other characters, a short (6-7 mm long) spur. However, at Harvard we have seen two other specimens [*Keenan et al. 933 p.p.* (A); *758* (A)] which are identical in habit and floral characters but possess a longer (13-16 mm long) spur. We made critical comparisons with other similar species such as *H. siamensis* Schltr. and *H. porphyricola* Schltr. but found these differed in habit or column characters.

Occurrence: Tenasserim, Tavoy district, Hills W of Paungdaw Power Station, 640 m, 08-1961, *Keenan, U Tun Aung & Rule 905* (A).

Distribution: Myanmar, Thailand.

Habenaria myriotricha Gagnep., *Bull. Soc. Bot. Fr.* 78:72, 1931.

Gagnepain based this species on a Laotian collection made by Spire. It is similar to the Indonesian *H. medusae* Krzl. but the column has an extended base with two thickenings above the spur mouth and its stigmatic appendages are elevated above the spur mouth and lip base. In *H. medusae* the column is sessile, lacks the two thickenings above the spur mouth and the stigmatic appendages lie parallel (or almost touching) to the lip base. We expect that *H. myriotricha* will also be found in Thailand since the new Myanmar localities are in Tenasserim state

which is adjacent to the border.

Occurrence: Tenasserim, Tavoy district, Hills W of Paungdaw Power Station, 670 m, 08-1961, *Keenan, U Tun Aung & Rule 887* (A); same area, 640 m, 08-1961, *Keenan, U Tun Aung 771* (A); SW of Paungdaw Power Station, 610 m, 08-1961, *Keenan, U Tun Aung & Rule 743* (A); to E of Paungdaw Village, 305 m, 08-1961, *Keenan, U Tun Aung 1379* (A).

Distribution: Myanmar, Laos, Vietnam.

Habenaria pectinata D. Don, Prodr. Fl. Nepal.:24, 1825. *Orchis pectinata* J. E. Sm., Exot. Bot. 2:77, t.99, 1806 [non Thunb. 1794].

This species was based on collections made by Buchanan-Hamilton in Nepal. Kress *et al.* (2003) list this species from Mandalay but without citing any material. We cite below the three collections so far seen by us.

Occurrence: Chin Hills, Haka, Klangklang Road, 6.4 km from Haka, 1980 m, 30-09-1910, *Venning 35* (AMES); Haka Golf Course, 1980 m, 23-07-1910, *Venning 15* (AMES); same data, *Venning 16* (AMES).

Distribution: Nepal, N India, SW China, Myanmar.

Habenaria yuana Tang & Wang, Bull. Fan. Mem. Inst. 7:135, 1936.

Tang and Wang described this species based on a collection by T.T. Yu (no.1317) from Szechuan, China. The species is closely related to *H. arietina* Hook. f. with which it shares the characters of basally lobate petals but these are glabrous (not pubescent) on the inner surface. We suspect that the record of *H. arietina* by Kress *et al.* (2003) for Myanmar probably refers to *H. yuana* since they give the Chin and Shan states as places of occurrence. These are the same places from where the material we have seen comes from.

Apart from the new records cited below we have also studied material of *H. yuana* from Yunnan, China [*Wang 78422* (AMES)] and Thailand [*Garrett 715* (AMES)]. Seidenfaden (1977) referred the latter collection to *H. limprichtii* Schltr. (a Chinese endemic) but his figure is actually that of *H. yuana*.

Occurrence: Chin Hills, Haka, Klangklang Road, 6.4 km from Haka, 1980 m, 30-09-1910, *Venning 36* (AMES); S Shan States, Taunggyi, 1525 m, 07-1939, *Dickason 8696* (AMES).

Distribution: SW China; Myanmar; Thailand.

Herminium orbiculare Hook. f., Fl. Brit. Ind. 6:130, 1890.

This species was based on a collection brought by a

collector for Robert King from Tibet. It is the second known species of *Herminium* to occur in Myanmar.

Occurrence: Adung Valley, 3660 m, 07-1931, *Kingdon Ward 9876* (AMES).

Distribution: NE India, SW China, Myanmar.

Odontochilus clarkei Hook. f., Fl. Brit. Ind. 6:100, 1890.

Clarke's collection (no. 26741) from Mongpo, Sikkim forms the type material of this species. We have also seen two other old Sikkim collections [*Pantling 461* (K); *Gamble 4004A* (K)] of this rarely seen but beautiful yellow flowered orchid. It is likely confused in the herbarium and the field with the similarly coloured *O. lanceolatus* (Lindl.) Blume.

Occurrence: Valley of the Seing-hku, 1220-1525 m, 12-08-1926, *Kingdon Ward 7275* (K).

Distribution: NE India, SW China, Myanmar.

Odontochilus crispus (Lindl.) Hook. f., Fl. Brit. Ind. 6:99, 1890. *Anoectochilus crispus* Lindl., J. Proc. Linn. Soc., Bot. 1:180, 1857.

A drawing by Cathcart of a Sikkim plant formed Lindley's type of this plant.

Occurrence: Valley of the Sing-hku, 1830-2135 m, 25-09-1926, *Kingdon Ward 7464* (K); Nam Tisang-Mali Divide, 1525-1830 m, 24-06-1928, *Kingdon Ward 7332* (K).

Distribution: NE India, Bhutan, SW China, Myanmar.

Odontochilus tortus King & Pantling, J. As. Soc. Beng. 65:125, 1896.

Pantling collected this species in 1894 from Kumai, near the Jaldacca River, in an area he ascribed to the territory of Bhutan but the locality is apparently now in India (Pearce & Cribb 2002).

Despite its relatively late description, this species was the second of the Indian *Odontochilus* to be discovered when William Griffith collected it on the Mishmee Hills in the 1830s. However, his material became mixed with *O. lanceolatus* in Lindley's herbarium and thus this early record was for a long time overlooked.

Occurrence: N Triangle, Hkinhum, 1220 m, 12-08-1953, *Kingdon Ward 21255 pp.* (AMES, BM).

Distribution: NE India, Bhutan, Myanmar, Thailand, China, Taiwan.

Peristylus nematocaulon (Hook. f.) M. L. Banerji & P. Pradhan, Orch. Nepal Himalaya:106, 1984. *Habenaria nematocaulon* Hook. f., Fl. Brit. Ind. 6:154, 1890.

Two high altitude collections from Sikkim made by Joseph Hooker and C.B. Clarke form the type material of this species. The material from Myanmar is a mixture of two species, both new records, namely the plant at hand and *Platanthera stenantha*.

Occurrence: N Triangle, Tama Bum, 3140 m, 12-10-1953, *Kingdon Ward 21458 p.p.* (AMES).

Distribution: Nepal, NE India, Bhutan, SW China, Myanmar.

Platanthera stenantha (Hook. f.) Soo, Ann. Hist. Nat. Mus. Hung. Natl. Hung. 26:363, 1929. *Habenaria stenantha* Hook.f., Fl. Brit. Ind. 6:153, 1890.

Six collections from Sikkim made by Joseph Hooker (2) and C.B. Clarke (4) represent the type material of this entity. Lang (1998) mentions that *P. stenantha* occurs in Myanmar but without citing any material.

Occurrence: N Triangle, Tama Bum, 3140 m, 12-10-1953, *Kingdon Ward 21458 p.p.* (AMES).

Distribution: Nepal, NE India, Bhutan, SW China, Myanmar.

Zeuxine membranacea Lindl., Gen. Sp. Orch. Pl.:486. 1840.

Lindley based this species on a collection made by Griffith in Bhutan. Although long-confused with *Z. strateumatica* (L.) Schltr., one can distinguish *Z. membranacea* by its generally taller habit and pubescent (not glabrous) ovary among other characters (see Pearce & Cribb 2002). Other synonyms of *Z. membranacea* include *Z. evardii* Gagnep. [Type: *Evard 276* (P!)] from Vietnam and *Z. godefroyi* Rchb.f. [Type: *Godefroy 412* (K!)] from Cambodia. The illustration of *Z. strateumatica* by Seidenfaden (1978) represents *Z. membranacea*.

Occurrence: Ruby Mines district, near Nampaw Chaung, 120 m, 27-01-1910, *Lace 5070* (K).

Distribution: NE India, Bhutan, Myanmar, Thailand, Cambodia, Vietnam, China (Hong Kong).

New Synonyms

Eulophia herbacea Lindl., Gen. Sp. Orch. Pl.:182, 1833.

Type: Sri Lanka [?] – *Macrae s.n.* (syntype, K-L!); India – Mussooree, *Royle s.n.* (syntype, K-L!).

Eulophia lachnocheila Hook.f., Fl. Brit. Ind. 6:2, 1890. *syn. nov.*

Type: Upper Burma – Maymyo [as “Maypongo”, ‘May myo’ in CAL sheet], 06-1888, *Badal Khan 24*

(holotype, K! CAL!).

We compared the types of *E. herbacea* and *E. lachnocheila* and found the two taxa conspecific. As already mentioned by Joseph Hooker (1890), the Sri Lankan locality given for one of the syntypes of *E. herbacea* is likely due to erroneous labelling, probably of another Royle collection. This species is so far known not to occur in Sri Lanka.

Occurrence: Maymyo Plateau, 1065 m, *Lace s.n.* (K); “Upper Burma”, 1894, *Khalil s.n.* (BM).

Distribution: Nepal, India, Myanmar, Laos, China.

Eulophia macrobulbon (Par. & Rchb. f.) Hook. f., Fl. Brit. Ind. 6:7, 1890.

Cyrtopera macrobulbon Par. & Rchb. f., Trans. Linn. Soc., Bot. 30:144, 1874.

Type: Burma – Moulmein, *Parish 37* (holotype, K!).

Eulophia burmanica Hook. f., Fl. Brit. Ind. 6:5, 1890. *syn. nov.*

Type: Burma – Bhamo, 2-05-1837, *Griffith s.n.* (=k.d. 5285) (holotype, K!).

Cymbidium sp. no. 9: Griffith, Notul. Pl. Asiat. 3:343, 1851; Ic. Pl. Asiat. 3:t.330-III, 1851.

Despite only the buds remaining on the type of *E. burmanica*, we find that it is conspecific with *E. macrobulbon*. Griffith (1851a) provides a rather full description of the type of *E. burmanica* as his *Cymbidium* species number 9. Lindley (1858) misidentified the latter description as *Cyrtopera bicarinata* Lindl. [= *Eulophia bicallosa* (D. Don) P.F. Hunt & Summerh.]. This resulted in the erroneous ascription of *E. bicallosa* to the flora of Myanmar. Kress *et al.* (2003) cite six divisions of Myanmar as places of occurrence for *E. bicallosa* but we are quite sceptical of such a distribution and suggest the uncited specimens of these records be critically re-examined.

Occurrence: Mindat, 1065 m, 1-05-1956, *Kingdon Ward 22186* (BM).

Distribution: NE India, Myanmar, Laos, Vietnam, Cambodia, Thailand.

Trias oblonga Lindl., Gen. Sp. Orch. Pl.:60, 1830.

Type: Burma – Moulmein, *Wallich 1977* (holotype, K-L!).

Bulbophyllum burkillii Gage, J. As. Soc. Beng. n.s. 2, 8:343, 1906. *syn. nov.*

Type: Burma – Amherst District, Mya-Wadi, cult. Bot. Gard. Calcutta, *ex Burkill s.n.* (holotype & iconotype: CAL!).



Figure 2. Iconotype of *Bulbophyllum burkillii* Gage available at CAL.

Garay who studied the protologue of *Bulbophyllum burkillii* Gage had serious doubts about its generic placement. He believed it best placed in *Trias*. He suggested one of us (CSK) to locate the type and the drawing available at CAL. The type of *B. burkillii* had been misplaced at CAL for sometime but fortunately with its rediscovery we find that it is conspecific with the earlier *Trias oblonga*. One more drawing made during W.W.Smith's time is also available at CAL, very clearly showing characteristic operculum again reiterating our conviction that it is a true *Trias*.

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