



## Two new generic records in the orchid flora of Myanmar

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**ABSTRACT:** The species diversity of Orchidaceae is believed to be extremely high in Myanmar. Like in other plant groups, little basic inventory work has been done thus far. During floristic surveys conducted in Popa Mountain Park (Mandalay Region), Natma Taung National Park (Chin State), and in the Ywangan area (southwestern Shan State), we encountered two interesting orchid species which were determined to be new generic records in the flora of Myanmar. *Thuniopsis cleistogama* was previously considered endemic to Yunnan Province (China) and was only known from the type locality. However, here the species is newly reported from two localities in central and western Myanmar. *Disperis neilgherrensis* is known from several widely scattered localities in tropical and subtropical Asia. This tiny orchid species was discovered in the Ywangan area in the southwestern area of the Shan State of Myanmar. These two species will be valuable additions to the updated checklist of the orchids of Myanmar.

**Keywords:** *Disperis*, Mandalay Region, Mount Popa, Natma Taung, new generic record, Shan State, *Thuniopsis*

Orchidaceae are one of the most diversified plant families including approximately 30,000 species in the world. In Myanmar, the species diversity of Orchidaceae is also believed to be extremely high. Like in other plant groups, basic inventory work has been very poor until a few years ago. Recently, however, much international attention has been paid to uncover the floristic diversity of Myanmar, reporting numerous species either new to science or new to the country (detailed references in Kang et al., 2018).

Our team from Hallym University, South Korea, has been conducting international collaborative floristic research on the Myanmar flora since 2011, focusing on Popa Mountain Park in Mandalay Region and Natma Taung National Park in Chin State. In 2017 we began to survey the flora of Panlaung-Pyadalin Cave Wildlife Sanctuary in south-western Shan State as well.

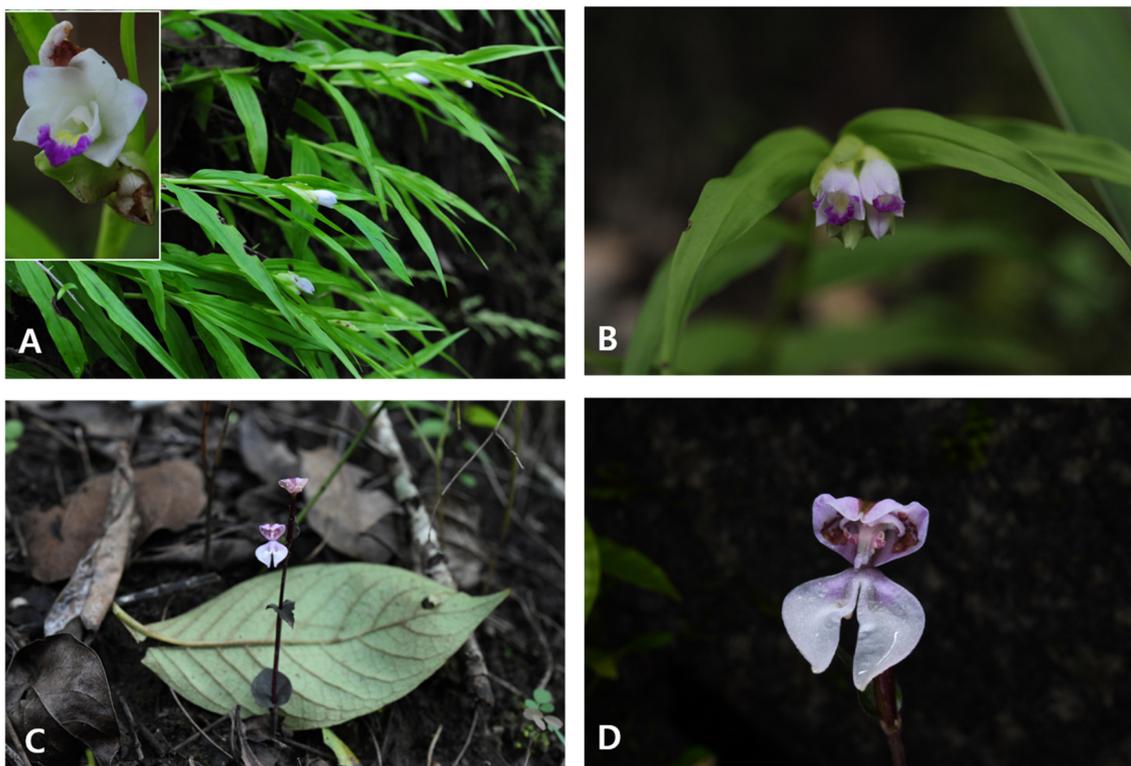
During the field surveys in these regions we encountered two interesting orchid species in the genera *Thuniopsis* L. Li, D. P. Ye & Shi J. Li and *Disperis* Sw., which turned out to be new records for the Myanmar flora. *Thuniopsis* is a recently

described monotypic genus, which is closely related with the genera *Bletilla*, *Dilochia* and *Thunia* in subtribe Coelogyninae of tribe Arethuseae (tribal and subtribal classification after Pridgeon et al., 2005; Li et al., 2015). The sole member of *Thuniopsis*, *T. cleistogama*, was previously considered endemic to Yunnan Province (China) and was only known from the type locality. However, the species is here newly reported from two localities in central and western Myanmar. *Disperis* is a genus comprising 78 species mainly distributed in Africa and the Indian Ocean islands, with *D. neilgherrensis* known from several widely scattered localities in tropical and subtropical Asia. We came across a few individuals of this species in the Ywangan area of south-western Shan State. Here we report these two new generic records of orchids for Myanmar.

### Taxonomic Treatment

*Thuniopsis cleistogama* L. Li, D.P. Ye & Shi J. Li, PLoS ONE 10: 12/14, 2015.—TYPE: CHINA. Yunnan Province,

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**Fig. 1.** The newly recorded orchid species. **A, B.** *Thuniopsis cleistogama* L. Li, D. P. Ye & S. J. Li (**A**, photographed in Popa Mountain Park; **B**, photographed near Kyin-Dway Village, Chin State). **C, D.** *Disperis neilgherrensis* Wight (photographed in the Ywangan area of south-western Shan State).

elev. ca. 1,250 m, 23 Jun 2012, *L. Li 19* (holotype IBSC not seen) (Fig. 1A, B).

Herbs terrestrial or sometimes lithophytic, with underground corms, apparently entirely glabrous, 30–60 cm tall, erect or arching. Stems flexible, slender. Leaves 8–14, cauline, alternate, narrowly elliptic-lanceolate, acuminate, 10–15 × 1.5–3 cm, texture rather thin. Inflorescence terminal on the leafy shoots, in the two specimens from Myanmar mostly 3–6 flowered in a head-like cluster with only 1–2 flowers open at a time, nearly sessile; floral bracts persistent, elliptic or ovate, longer than the ovary, 14–16 × 4.5–5 mm. Flowers fairly large, not opening widely; sepals and petals white with a purple flush, lip white with a purple flush, lip midlobe purple or bluish purple, callus yellow. Sepals free, oblanceolate, subacute, 17.5–19 × 3.5–5 mm. Petals similar but 5.5–6.5 mm wide. Lip oblong-elliptic, 17.5–18 × 7.5–11.5 mm, entire or shallowly 3-lobed, spurless but deeply saccate at the base; lateral lobes enclosing the column; mid-lobe with crisped margin; callus as five keels. Column 12–12.5 mm long, without foot; anther with 8 waxy pollinia; stigma prominently 3-partite, in a cavity under

the rostellum (description mainly after the photographs of the two Myanmar specimens, all measurements after Li et al., 2015).

**Specimen information:** MYANMAR. Mandalay Region: Myingyan District, Popa Mountain Park, elev. 645 m, 13 Aug 2011, *S.-H. Cho et al. MM-0507* (HHU) (prepared from a cultivated plant); Chin State: Mindat District, Kamptlet Township, Kyin-Dway Village, elev. 694 m, 6 Aug 2016 (photographic record) (Fig. 1B).

**Distribution:** Previously considered endemic to Yunnan Province (China) and only known from the type locality (Li et al., 2015). However, the species is here newly reported from two localities in western and central Myanmar.

**Notes:** A recently described species, related to *Thunia* but apparently distinct from it. It is remarkable that this fairly large and attractive orchid has not been discovered earlier, particularly in view of the fact that both areas where it was now found (Popa Mountain Park, Natma Taung National Park) are among the botanically best studied areas in Myanmar. The population in Popa Mountain Park is fairly large (ca. 100 individuals), but the population at Kyin-Dway Village (Natma

Taung National Park) is limited in size (only three flowering individuals were observed). *Thuniopsis cleistogama* resembles *Thunia* species and may in the past have been mistaken for a member of this genus. In fact, in China this plant was indeed mentioned before as *Thunia cleistogama* (Xu et al., 2010), but this name was not validly published. According to its protologue, the Myanmar endemic *Arundina subsessilis* Rolfe (currently accepted name *Dilochia subsessilis* (Rolfe) S. Thomas) closely matches *Thuniopsis cleistogama*. However, Rolfe's plant differs by having smaller flowers with distinctly shorter sepals and petals.

***Disperis neilgherrensis*** Wight, Icon. Pl. Ind. Orient. 5: 15, t. 1719, 1851. *Disperis zeylanica* Trimen var. *neilgherrensis* (Wight) Pradhan [as *nilgirensis*], Indian Orchids: Guide Identif. & Cult.: 42, 1976, nom. illeg.—LECTOTYPE (designated by Kurzweil, 2005: 143): South India, Coimbatore, *Wight 3018* (K; isoelectotypes AMES, C, S, W) (Fig. 1C, D).

*Disperis zeylanica* Trimen, *D. papuana* Michol. & Kraenzl., *D. rhodoneura* Schltr., *D. philippinensis* Schltr., *D. javanica* J.J. Sm., *D. siamensis* Rolfe ex Downie, *D. orientalis* Fukuy., *D. palawensis* (Tuyama) Tuyama, *D. lantauensis* S. Y. Hu, *D. teleplana* Maek. For a detailed synonymy as well as publication details, see Kurzweil (2005).

Herbs terrestrial, with underground root tubers, slender or semi-robust, mostly 4–25 cm tall, specimens from Myanmar glabrous except for the lip. Stem green but often with purple or brown flush. Leaves 1–3, alternate, reniform or cordate, acute, mostly 0.3–3 × 0.3–2.5 cm, amplexicaul, weakly petiolate. Inflorescences with 1–2 flowers in the specimens from Myanmar, in other parts of the distribution area up to 5 or rarely 10; bracts usually 5–17 mm long. Flowers small or medium-sized, in the Myanmar specimens white, pink or light purple, with darker markings; pedicel and ovary cylindrical, 6–25 mm long. Median sepal forming a shallow hood together with the petals, narrowly lanceolate, subacute or acute, 5–14 × 0.7–2.2 mm. Lateral sepals spreading or pendent, obliquely ovate-lanceolate, obtuse or subacute, mostly 5–12 × 1.5–6 mm, basally united up to one third, with conical sacs/spurs up to 2.5 mm long. Petals broadly ovate-lanceolate, subacute or obtuse, 5.5–14 × 2–5 mm. Lip clawed and basally united with the column; blade rotund, with tomentose median crest, blade on a flat descending stalk; lip appendage in the form of two lateral processes which are horn-like and spreading in the two specimens from Myanmar. Column 1.5–3 mm long; anther reflexed; stigmas as two pads on the sides of the central

rostellum lobe; central rostellum lobe flat, covering the anther; rostellum arms lorate with prominent flat viscidia (description mainly after the photographs of the Myanmar specimen, measurements after Kurzweil, 2005).

**Specimen information:** MYANMAR. Shan State: Taunggyi District, Ywangan Township, near Tet Taung Village, elev. 1,374 m, 19 Aug 2018 (photographic record) (Fig. 1C, D).

**Distribution:** Known from several widely scattered localities in tropical and subtropical Asia. The species has been recorded from Sri Lanka, India (southern, north-eastern), Myanmar, Thailand (southern, northern and eastern), Hong Kong (Lantau), Taiwan (southern), Japan (Nansei Shoto), the Caroline Island Palau, the Philippines (Luzon), Indonesia (Java, Flores, Moluccas and Irian Jaya) and Papua New Guinea (Torricelli and Finisterre ranges). The species is probably more widespread, but the plants are often very small and therefore easy to overlook.

**Note:** Twelve Asian *Disperis* species have originally been described, but were found to be identical in morphological features and were therefore placed in synonymy of the oldest taxon *D. neilgherrensis* Wight (Kurzweil, 2005).

Due to the widespread distribution of *Disperis neilgherrensis* in southern, south-eastern and eastern Asia the occurrence of this species in Myanmar is not surprising. Because of the often small size of the plant it may have been overlooked in the past.

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## Conflict of Interest

Young-Dong Kim, a contributing editor of the Korean Journal of Plant Taxonomy, was not involved in the editorial evaluation or decision to publish this article. All remaining authors have declared no conflicts of interest.

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