Synopsis of *Pholidota* Lindley ex W.J.Hooker (Orchidaceae) in Manipur, India, with a newly recorded species

Krishna Chowlu¹, ² & A.Nageswara Rao¹

Keywords/Mots-clés: India, Manipur, new record/nouvel enregistrement, Pholidota, taxonomy/taxinomie.

Abstract
The article deals with six species of the genus *Pholidota* so far reported from Manipur including one new addition: *Pholidota convallariae*. For five of them (*Pholidota articulata*, *P. convallariae*, *P. imbricata*, *P. pallida* and *P. pygmaea*) description and illustrations are given. Furthermore an identification key for these species is added.

Résumé
Synopsis du genre *Pholidota* (Orchidaceae) dans l’état de Manipur, Inde, et addition d’une espèce, nouvellement découverte – L’article traite des six espèces de *Pholidota* enregistrées à ce jour à Manipur, dont une espèce nouvellement observée, *Pholidota convallariae*. Chaque espèce (*Pholidota articulata*, *P. convallariae*, *P. imbricata*, *P. pallida*, *P. protracta* et *P. pygmaea*), est décrite et, à l’exception de *P. protracta*, illustrée. En outre une clé d’identification de ces espèces est proposée.

Introduction
The genus *Pholidota* was described by Lindley in 1825 in W.J.Hooker’s *Exotic Flora*. The genus is characterised by pendent or erect, epiphytic or lithophytic plants; pseudobulbs close or distant on the rhizome; leaves 1 or

---

*¹: manuscrit reçu le 2 mars 2015, accepté le 30 septembre 2015
article mis en ligne sur www.richardiana.com le 16/10/2015 – pp. 4-17 - © Tropicalia
ISSN 1626-3596 (imp.) - 2262-9017 (élect.)
2, narrowly elliptic, ovate or oblong; inflorescence laxly to densely many flowered; flowers small, fleshy; dorsal sepal concave or convex, broadly ovate to elliptic; lateral sepals concave to convex, often keeled; petals ovate to linear; lip sessile, epichile sub-entire or 3 lobed, deflexed; column short; polinia 4.

The genus is represented by 41 species (Govaerts et al., 2014) distributed in India, SE Asia, Australia, New Guinea and the Pacific Islands. In India it is represented by 11 species (Misra, 2007; Rao, 2007) and in Manipur it is represented by 5 species (Mukerjee, 1953; Chauhan, 2001; Kumar & Kumar, 2005; Chowlu et al., 2014). Here we are reporting *Pholidota convallariae* J.D.Hooker as a new addition to the Manipur orchid flora. The specimens of the species were collected from different parts of Manipur during the last five years in vegetative condition and brought to the orchidarium of the Orchid Research & Development Centre, in Hengbung, Manipur. They were identified during flowering by consultation of literature (Hooker, 1890; Mukerjee, 1953; Pradhan, 1979; Kataki, 1986; Hynniewata et al., 2000; Chauhan, 2001; Pearce & Cribb, 2002; Rao, 2007; Lucksom, 2007, Chen et al., 2007). All herbarium specimens mentioned in this article are deposited in the herbarium of Centre for Orchid Gene Conservation for Eastern Himalayan Region (COGCEHR).

**Identification key to the species**

1a. Leaf solitary

1b. Leaf 2

2a. Leaf thin, herbaceous; lateral sepals connate at base

2b. Leaf thick, not herbaceous; lateral sepals free at the base

3a. Pseudobulbs ovoid-rounded, not with 4 ridges; floral bract ovateround, obtuse, not coriaceous

3b. Pseudobulbs lanceolate-cylindric, with 4 obscure ridges; floral bract broadly ovate-pentagonal, acute, coriaceous

4a. Leaves broad, oblong lanceolate

4b. Leaves linear lanceolate

XVI – octobre 2015

Richardiana
5a. Inflorescence secund; floral bracts shading during flowering; flowers bright white  

\[ P. \text{convallariae} \]

5b. Inflorescence not secund; floral barts persisting during flowering; flowers creamy white  

\[ P. \text{protracta} \]

**Taxonomic description**


Pseudobulbs 3-7 cm long, slender to swollen, green to greenish yellow; leaves 4.5-11 × 1.5-3 cm, oblong-lanceolate, acute, petiole ca. 1 cm long; inflorescence synanthous, 10-20 flowers, lax, peduncle 1.5-3 cm long, terete, rachis 3-6.5 cm long, zigzag; pedicel ovary 3-4 mm long, terete, greenish yellow; floral bract 0.7-1.3 × 0.4-0.7 cm, distichous, oblong-ovate, acute to sub-acute; flowers ca. 3 mm across, creamy white and lip creamy yellow; sepals sub-equal, the dorsal 3.5-6 × 1.5-3.0 mm, ovate to ovate-oblong, acute, the lateral ones 4-6.5 × 1.5-3.0 mm, ovate to ovate-lanceolate, acute-acuminate; petals 3-5 × 1.5-2.5 mm, ovate-lanceolate, acute, 3 veined; lip 4-6 × 1.7-3.5 mm, creamy yellow, boat shaped, constricted in the middle, 5 keeled in basal half, epichile recurved, 2-lobed, lobules rounded; column 1.2-2.0 mm long, light brown, 2 chambered; pollinia 4, obovate, creamy white. (Plate 1)

Flowering: April-July.

Etymology: from the Latin *articulata* (jointed) in reference to the rhizomes.
Plate 1: *Pholidota articulata* Lindley

A. Habit; B. Inflorescence; C. Bract; D. Complete flower; E. Dissected parts; F. Lip; G. Column with pedicel ovary; H. Anther cap. I. Pollinia.
Specimens examined: INDIA, Manipur, Senapati District, Hengbung Chowlu 00079, 00353, 00354, 00355.

Distribution: India (N.E. India, Jammu & Kashmir, Uttrakhand), Cambodia, Java, Myanmar, Nepal, Thailand, Vietnam to Sumatra.


Type region: Eastern India.

Pseudobulbs 3-6 cm long, slender to swollen, obpyriform, green to greenish yellow; leaves 2, 8-15 × 1.4-2.0 cm, linear-lanceolate to oblanceolate, acute, petiole ca. 1 cm long; inflorescence synanthous, secund, 10-15 flowers, dense, from the base of the pseudobulbs, peduncle 2.5-5 cm long, terete, covered with sheaths, rachis 3-5.5 cm long, secund; pedicel ovary 3-4.5 mm long, terete, green; floral bract not seen, distichous, falling off during flowering; flower 6-7 mm across, brightly white, fragrant; sepals sub-equal, white, the dorsal 4.8-5.2 × 2.5-2.7 mm, ovate-oblong, acute, concave, the lateral ones 5-5.5 × 2.5-2.7 mm, ovate, acuminate; petals 4-4.5 × 2.7-3.2 mm, ovate, sub-acute, white; lip 4.2-5 × 2.3-3 mm, white, cup shaped, 3 nerved; column 3-4 mm long, minutely winged, white; anther cap 0.8-0.9 × 0.6-0.7 mm, creamy; pollinia 4, ca. 0.7 mm long, transparent. (Plate. 2)

Flowering: April-May.

Specimens examined: INDIA, Manipur, Senapati District, oklong, Chowlu 00502, 00503.

Distribution: India (Manipur, Meghalaya, Nagaland), Myanmar.


Plate 2. *Pholidota convallariae* (C.S.P.Parish & Reichenbach f.) J.D.Hooker
A. Habit; B. Fruits; C. Inflorescence; D. Flower; E. Dissected parts; F. Lip. G. Column with pedicel ovary; H. Anther cap; I. Pollinia.
Pholidota pallida sensu Hulttum, Orchids of Malaya ed. 3: 237. 1964, non Lindley

Pholidota bracteata (D. Don) Seidenfaden, Opera Botanica 89: 100. 1986.

Pseudobulbs 3-7 × 1-1.7 cm, 4-5 obtuse ridges, glabrous, sheathing at base, sheaths 3-8 × 0.7-1.5 cm, lanceolate-cylindric, acute; leaf solitary, 14-25 cm long, from the apex of the pseudobulb, obovate-oblong, acute, 5-nerved, petiole 1-1.5 cm long; inflorescence synanthonous, 25-55 cm long, densely many flowered, peduncle terete, glabrous, sheathless, rachis 7-17 cm long; floral bracts 4-7 × 5-8 mm, broadly ovate-pentagonal, acute, brown, membranous; pedicel ovary 4-7 mm; flowers 4-5 mm across, creamy white with lip yellow orange; dorsal sepal 4-5 × 3.5-4 mm, broadly ovate, acute, 5-veined, lateral ones 4-5 × 3-3.5 mm, ovate-oblong, acute, keeled, 5 veined; petals 3.8-4.5 × 2.5-3 mm, oblong, acute, falcate, 1 veined; lip 4-4.5 × 3-3.4 mm, yellow orange, base boat shaped or concave, apex deeply 2-rectangular lobed; column 3-4 mm long, winged, creamy white; anther cap 0.7-0.9 × 0.8-1.0 mm, 2 chambered, brown; pollinia 4, 0.4-0.6 mm long, creamy. (Plate. 3)

Flowering: March-July.

Etymology: From the Latin imbricatus (overlapping) in reference to the rachis.

Specimens examined: INDIA, Manipur, Senapati district, Willong, Chowlu 00077; Chandel district, Chakpikarong, Chowlu 00366, Tamenglong district, Tamenglong, Nanda 00519.

Distribution: India (N. E. India, Uttrakhand), Australia, Bangladesh, China, Indonesia, Laos, Malaysia, Myanmar, Nepal, Philippines, Thailand, Vietnam and south Pacific Island.

Coelogyne calceata (Reichenbach f.) Reichenbach f., in Walpers, Annales Botanices Systematicae 6: 238. 1861.
Plate 3. Pholidota imbricata W.J. Hooker
A. Habit; B. Inflorescence; C. Bract; D. Flower; E. Dissected parts; F. Lip; G. Column with pedicel ovary; H. Anther cap; I. Pollinia
**Pholidota yunnanensis** Schlechter, *Repertorium Specierum Novarum Regni Vegetabilis* 19: 378. 1924, non Rolfe.  

Pseudobulbs 2.5-4.5 cm long, slender to swollen, base covered with inconspicuous, 3-4 cm long sheaths; leaf solitary, 6-15 × 1.5-3.0cm, oblong-lanceolate, acute; petiole 0.5-1 cm long; inflorescence 18-30 cm long, synanthous, peduncle 4-14 cm long, terete, rachis densely many flowered; floral bract 4.5 × 4-5.5 mm, ovate-sagittate, acute, membranous, brown; pedicel ovary 3-4 mm long, smooth, green; flower 2-3 cm across, creamy white, fragrant; sepals sub-equal, creamy white, the dorsal 4.5 × 2-3.5 mm, oblong-elliptic, obtuse, the lateral ones 5-6 × 4-5 mm, oblong-ovate, connate at the base; petals 3-4 × 1-2 mm, oblong, obtuse; lip 4.5-5.5 × 3.8-4.8 mm (when spread out), broadly 3-lobed, disc with 3 short calli, lateral lobes ca. 3.5 mm long, erect, apical lobe divided into two lobules, irregularly quadrate; column 2-3 × 2.5 mm, winged, spathulate; anther cap 0.7-0.8 × 1.0-1.2 mm, dark brown; pollinia 4 in two pairs, ca. 0.5 mm long. (Plate. 4)  

Flowering: August-September.  

Etymology: From the Latin *pallidus* (pale) in reference to the flower.  

Specimens examined: INDIA, Manipur, Senapati district, Hengbung, Chowlu 00081, 00084, 00085, 00404; Willong, Chowlu 00157; Oklong, Chowlu 00543.  


Plate 4. *Pholidota pallida* Lindley

A. Habit; B. Inflorescence; C. Bract; D. Flower; E. Dissected parts; F. Lateral sepals showing the connate nature; G. Lip; H. Lip showing the front view; I. Column with pedicel ovary; J. Column; K. Anther cap. L. Pollinia.
Synopsis of *Pholidota* in Manipur – Chowlu & Nageswara Rao

Pseudobulbs 2-7 cm long, slender, conical, curved; leaves 4-12 × 1.3-2.5 cm, linear lanceolate, acuminate, petiole 0.5-1 cm long; inflorescence 4-10 flowered, from the rhizome, peduncle 0.8-1.5 cm long, terete, rachis 2-4 cm long, zigzag; floral bract 2.5-3.5 × 3-4 mm, ovate, acute; flower 5-6 mm across, creamy white; sepals sub-equal, the dorsal 3.5-4.2 × 2-2.2 mm, ovate, sub-acute, the lateral ones 4.5-5.5 × 2.5-3 mm, ovate-oblong, acute; petals 3.5-4 × 1.5-2 mm, ovate to obovate, acute; lip 4.5-5.5 mm long, hypochile shallow, lateral margins lobe like, epichile ovate, apex retuse; column 3-4 mm long, hooded, foot *ca.* 0.3 mm long; anther cap light brown; pollinia 4, 0.5 0.6 mm.

Flowering: October-November.

Etymology: From the Latin *protractus* (lengthened, drawn out).

Distribution: India ( Manipur, West Bengal, Sikkim), Bhutan.

Note: During this last 4 and half years we are not able to collect the species but it was reported from Manipur by Mukherjee (1953).


Type: H.J.Chowdhery 1760 (Holo: CAL, Iso: ARUN).

Pseudobulbs 3-3.5 × 2.4-2.7 cm, ovoid-rounded, clustered, smooth, base covered by sheaths; leaf solitary, 15-22 × 4.5-5.5 cm, broadly elliptic-lanceolate, acute at apex, thick coriaceous, mid nerve shallowly grooved underneath, reflexed, petiole 5-9 mm long; inflorescence 30-35 cm long, curved, peduncle 10-14 cm long, terete, glabrous, rachis 17-21 cm long, densely many flowered; floral bract 6-7 × 4.5-5.5 mm, ovate-round, obtuse; pedicel ovary *ca.* 5 mm long, pale green; flower 4-6 mm across, creamy; sepals unequal, creamy, the dorsal 4-5 × 3.5-4 mm, ovate, sub-acute, the lateral ones 6.5-7 × 3-3.5 mm, oblong, acute, cymbiform with winged keel; petals 3.5-4 × 1.5-2 mm, linear to linear-lanceolate, obtuse, minutely falcate, creamy; lip 5-6 × 4-4.5 mm, 3-lobed, orbicular, lateral lobes rectangular, apical lobe with small sinus; column 3.0-3.5 × 2.5-3 mm, winged, creamy; anther cap 0.6-0.7 × 1-1.3 mm, brown; pollinia 4 in 2 pairs, *ca.* 0.5 mm, creamy. (Plate. 5)

Flowering: September-November.
A. Habit; B. Inflorescence; C. Bract; D. Flower; E. Dissected parts; F. Lip; G. Column with pedicel ovary; H. Anther cap; I. Pollinia.
Synopsis of *Pholidota* in Manipur – Chowlu & Nageswara Rao

Etymology: From the Latin *pygmaeus* in reference to the small size of the flower.

Specimen examined: INDIA, Manipur, Chandel district, Kwatha *Chowlu 00392*.

Distribution: India (Arunachal Pradesh, Manipur).

Acknowledgements
Sincere thanks are due to Mr. H. Kipgen, President of the Foundation for Environment and Economic Development Services, Hengbung, for facility and encouragement; to the SERB division of Department of Science and Technology, Government of India, New Delhi for financial support to carry out the study on orchids of the Eastern Himalayan Region.

References


1: Orchid Research & Development Centre, Hengbung, P. O. Kangpokpi, Senapati District, Manipur 795 129, India
2: Botanical Survey of India, Arunachal Pradesh Regional Centre, Senki View, Itanagar, District Papum pare, Arunachal Pradesh 791 111
* Corresponding author: krishnachowlu@gmail.com