



Dendrobium herbaceum Lindl. (Orchidaceae) from the Andaman Islands in the Bay of Bengal

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ABSTRACT

Andaman-Nicobar Archipelago, the insular habitat in the Bay of Bengal is highly affluent with plant diversity. According to latest statistics, the tropical rainforests of these islands are known to host over 2463 Angiosperm taxa within a limited geographical region of 8,249 sq km, indicates its fragile ecological equilibrium. Orchidaceae is one of the well represented Angiosperm families of the Andaman- Nicobar Archipelago. Dendrobium Swartz is one of the predominant insular orchid genera with wide range of occurrence from tidal swamps at sea level to hilltop vegetations at higher altitudes represented with 19 species including the present addition. Dendrobium herbaceum Lindl. is a new addition to the flora of Andaman Islands is described here with illustrations.

KEYWORDS : *Dendrobium herbaceum*, Andaman Islands, New record

Introduction

The Andaman-Nicobar Archipelago constitutes around 306 islands and 206 islets covering an area of 8,249 sq km located between the latitudes 6° 45' to 13° 41' N and the longitudes 92° 12' E to 93° 57' E. The geological genesis of Andaman-Nicobar islands is regarded as the exposed peaks of a submerged mountain range in continuation with the Arakan – Yoma Mountains of the Myanmar towards Molucas Island of the Indonesia. The insular flora of Andaman-Nicobar Islands is obviously 'continental' in origin and evolved to the present status from a totally balanced continental bio-system through evolution over millions of years. Therefore the present insular bio-system may be referred to as a 'sub continental bio-system'. The climatological features and geographical isolation of this floristic zone from the major land masses of South and Southeast Asia over millions of years endowed with unique plant diversity and also coupled with multi-dimensional phytogeographical affinities towards nearer and distant regions such as Northeast India, Southeast Asia, Sri Lanka and Peninsular India (Western Ghats). The flora of the Andaman-Nicobar Islands is rather unique in phytogeography, since it characterizes the transit zone vegetation between the Indian subcontinent and the Malesian floras.

The total forest coverage of the Andaman-Nicobar Islands has been officially estimated as 6662 sq km comprises approximately 80.76% of the total land area (Forest Statistics, 2009). According to one of the most recent floristic evaluation, the insular flora comprises 2673 species, including around 300 non indigenous/cultivated species, belonging to 1117 genera of 240 families. On detailed account, the insular flora is characterized with 2463 Angiosperm species belonging to 1018 genera and 182 families. Gymnosperms are rather poorly represented with 8 species of 4 genera belonging to 3 families; while the Pteridophytes represents with 141 species of 63 genera belonging to 39 families. There are 62 species of insular Bryophytes belonging to 32 genera of 16 families have also so far been reported. Three genera and 300 species are enumerated as endemics to Andaman and Nicobar Islands.

The strong influence of tropical humid climate with high annual rainfall of about 3400mm and an average temperature of 30°C with a mean relative humidity of about 82 percent contribute ideal ecological niches for the luxuriant growth of wild orchids among the rainforests in all islands and islets of the archipelago. Insular wild orchids, mostly epiphytes co-existing with the tree flora of the islands, have a wide range of distribution from aquatic tidal swamps to inland hilltop vegetation and remarkable degree of species diversity within limited insular habitats of all islands. Ground orchids rather rare, around 20 species, confined to very specific insular microhabitats. Insular Orchidaceae enumerates the second largest insular family with 155 wild taxa (Vasudeva Rao 1986, Mathew 1998 Pandey & Diwakar 2008).

During one of the floristic explorations carried out at Kalpong forests in North Andamans (December, 2012), the author has come across an interesting leafless epiphytic orchid with greenish yellow stems belonging to the genus *Dendrobium* Swartz. Interestingly, all the spec-

imens were in vegetative condition without flowers or fruits and the fusiform leafless stem apparently resembles like some other common insular *Dendrobium* species (*D. aphyllum*, *D. secundum* etc.) at first sight. One live sample has been carefully brought from the island and introduced at the field gene bank of the Jawaharlal Nehru Tropical Botanic Garden, established at the foothills of the Southern Western Ghats at Thiruvananthapuram District of the Kerala State. The climatological features of Andaman-Nicobar Islands and the Western Ghats of the peninsular India being more or less similar, the insular plant species demonstrate remarkable survival rate in Western Ghats habitats. The live specimen introduced at botanic garden was flowered during February-March season and on critical studies, it has been identified as *Dendrobium herbaceum* Lindl.

Dendrobium Swartz is one of the largest genera of the Orchidaceae, mostly epiphytic and occasionally lithophytic in natural habitats, comprises around 1,100 species (Wood, 2006). The genus has wide range of habitats occurring to a great extent of South Asia towards Southeast Asia and Australia to New Zealand. According to Misra (2007), 116 species have so far been reported from India. The diagnostic characters of the genus *Dendrobium* Swartz symbolize occurrence of mentum, a chin formed from the column foot, lip and lateral sepals and the lack of caudicle or viscidia in the pollinia.

Dendrobium herbaceum Lindl., rather a rare species with infrequent distribution in Andaman Islands. Detailed consultation at various Indian herbaria (PBL, CAL, DD, MH) revealed that no collections of this species was made earlier from Andaman-Nicobar Islands. Comprehensive perusal of literature including the latest check-list on Andaman-Nicobar flora substantiates the same (Kurz 1877; Gamble, 1903; Parkinson 1923; Vasudeva Rao 1986; Sarkar 1995a; Sarkar 1995b; Lakshminarashimhan & Rao, 1996; Mathew 1988; Dagar & Singh, 1999; Kameswara Rao *et al.*, 2003; Pandey & Diwakar 2008; Lakshminarashimhan *et al.* 2011). Being an interesting component of Andaman flora, a detailed description along with an illustration is appended herewith.

Taxonomic description

Dendrobium herbaceum Lindl. in Edward's Bot. Reg. Misc. 69, 1840; Hook.f., Fl. Brit. India 5: 719, 1890. *Callista herbacea* (Lindl.) Kuntze, Revis. Gen. Pl. 2: 654, 1891. (Plate 1: A-C)

Epiphytic herbs; Stems greenish-yellow with ridges and furrows, fusiform, elongated, branched; Leaves 4-7 x 0.5-0.8 cm, linear-lanceolate, distichous, alternate, sessile, leafless on flowering, sub-acute at apex; inflorescence in condensed racemes, mostly terminal, rarely lateral; Flowers 10x7 mm, 1-5 in condensed racemes, mostly terminal, rarely lateral, milky white, peduncle 4-8 mm long, sheathed at base, sheath oblong, translucent, sub-acute at apex; Bracts, oblong lanceolate, acuminate at apex, membranous, persistent; Pedicel 7mm long, pale greenish; Sepals sub-equal, dorsal sepal oblong-lanceolate; lateral sepal obliquely oblong-lanceolate, rarely falcate, rounded at apex; Petals elliptic-oblong; Lip ovate-lanceolate reflexed at the base, obscurely 3-lobed; lateral lobes narrow, obsolete, mid lobe, ovate, obtuse; Column 3mm long, white; Foot 2mm long, slightly pale

green, curved; Stigma deep seated, rounded; Rostellum narrowly and transversely oblong, white, upturned at apex; Anthers ovate; translucent-white, pollinia obliquely ovoid, pale yellow.

Flowering period: February – March

Specimen examined: North Andamans, Diglipur, Kalpong forests, 17.12.2012, S. P. Mathew 5251 (TBGT).

Conclusion

The phytogeography of *Dendrobium herbaceum* Lindl., is quite interesting with disjunct distribution between Indian Subcontinent and the Andaman Islands. It is rather well distributed along the slopes the Southern Western Ghats at elevations from 600 to 1500m. There are some uncertainties on the general geographical distribution of this species as some taxonomic literature refers to as an endemic species of the Peninsular India (Sashidharan, 2004) while some others have been recorded as endemic to India (Misra, 2007, Nayar *et al.*, 2006); Goaverts (2003) recorded its geographical distribution from India towards Bangladesh in the website on World's Checklist of Selected Plant Families (WCSPF) facilitated by the Royal Botanic Garden, Kew; (http://apps.kew.org/wcsp/namedetail.do?name_id=57959 - accessed on 22/06/2015) and Abraham & Vatsala (1981) reported this species from Bengal also. Interestingly, it is noted that the genus *Dendrobium* Swartz is well represented in Myanmar with 90 taxa (Kress *et al.*, 2003); nevertheless, *D. herbaceum* Lindl. has so far not been reported from this region. Its occurrence in Andamans seems not very much surprising since several insular species have disjunct distribution towards the Western Ghats and Sri Lanka. There are over 15 orchid species common for these three regions. *Corymborkis veratrifolia* (Reinw.) Blume, *Cymbidium aloifolium* (L.)Sw., *C. bicolor* Lindl., *Dendrobium macrostachyum* Lindl., *Geodorum densiflorum* (Lam.) Schlecht., *Nervilia aragoana* Gaud., *N. plicata* (Andr.) Schltr., *Oberonia iridifolia* Roxb. ex Lindl. var. *denticulate* (Wight) Hook.f., *O. mucronata* (D. Don) Ormerod & Seidenf., *Pholidota imbricata* Lindl., etc are good examples of disjunct distribution between Andaman-Nicobar Islands and the Western Ghats. The present collection from North Andamans is the first authentic material from the island confirms the extended occurrence of this species in Andaman Islands

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Plate 1: A-C, *Dendrobium herbaceum* Lindl., Plant from Andamans flowered at JNTBGRI



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