

Distribution of *Dendrobium* species in Kamlang Wildlife Sanctuary of Arunachal Pradesh, India

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Abstract

This paper deals with the distribution of different species of *Dendrobium* in Kamlang Wildlife Sanctuary of Arunachal Pradesh, India. All the species described here are enumerated with brief description, phonological data, collection numbers and distribution.

Keywords: Orchids, *Dendrobium*, Kamlang, Arunachal Pradesh.

INTRODUCTION

Arunachal Pradesh is considered as one of the mega biodiversity hotspots areas of Asia and is covered by Himalaya Hotspot of IUCN. It is known for its high concentration of orchid wealth which may be attributed to its ideal natural climatic conditions like high rainfall, high humidity and presence of maximum forest cover comprising of very rich diverse vegetation of tropical, sub-tropical, temperate and alpine types. The extremely variable topography and climatic factors support high biological diversity in the area.

Kamlang Wildlife Sanctuary is situated in the Southeastern part of Lohit District of Arunachal Pradesh. The name of the sanctuary has been originated from the River Kamlang that flows through the Sanctuary and joins Brahmaputra. The Sanctuary lies between Lang River on the North and Namdapha National Park on its south. It stretches over an area of 783 sq km comprising of wet ever green tropical vegetation in the foot hills and sub-tropical and alpine vegetation in the upper reaches of "Daphabhum peak" just bordering Namdapha National Park. The most common tree species found in the tropical region of the sanctuary are *Canarium resiniferum* (Dhuna), *Terminalia chebula* (Hillika), *Gmelina arborea* (Gamari), *Amoora wallichii* (Amari), etc. The Sanctuary has a few water bodies at an elevation of 600 m of which most significant is the 'Glow Lake' situated at a distance of 20 km from Wakro with a circumference of about 4 to 5 km (approx.).

Dendrobium represents a large group of epiphytic orchids which is known for its beautiful flowers of various colors, hues and shades. In Arunachal Pradesh it is the second largest epiphytic genus with 43 species after *Bulbophyllum* (44 species). In the sanctuary the genus is found to be common in distribution but the species diversity is very less. This may be due to destruction of forest in the recent past for different developmental activities like road construction, agricultural activities, settlement extension, etc.

MATERIALS AND METHODS

In order to assess the orchid flora of the Sanctuary a number of field explorations have been carried out in the Sanctuary during the past 2½ years. Live collections of different *Dendrobium* species were made at different intervals and maintained at Department of Botany, Rajiv Gandhi University for ready availability of plants during taxonomic workout. The sample collections have been critically studied after their flowering under cultivation at the University garden. Correct identification was done by using standard orchid manuals, other regional publications (Hooker 1890; King & Pantling 1889, 1898; Pradhan 1979; Hegde 1984; Kataki 1986; Chowdhury 1997; Hynniewta *et al* 2000) and by consulting Herbaria. The study revealed the existence of 6 species of *Dendrobium* which are listed in this paper.

ENUMERATION

Key to the species:

1. Lip slipper or cup-shaped ----- *D. moschatum*
- 1a. Lip not slipper or cup-shaped ----- 2
2. Corolla tips mauve; lip rich maroon at base, simple or unlobed ----- *D. nobile*
- 2a. Corolla tips or lips not so but the later obscurely 3-lobed ----- 3
3. Flowers pale purple; anthers dark purple; rachis zigzag ----- *D. aduncum*
- 3a. Flowers creamy white or pale rose to yellow; rachis not zigzag ----- 4
4. Inflorescence 1-flowered; lip uniformly pale yellow ----- *D. aphyllum*
- 4a. Inflorescence 8 – 15 flowered; lip with a central pale yellow area ----- 5
5. Stem obscurely 4-angled, internodes non-sheathed; flowers pale yellow; lip entire, base not blotched; inflorescence 1 flowered ----- *D. densiflorum*
- 5a. Stem terete, internodes sheathed; flowers light orange yellow; lip much fimbriate blotch; inflorescence 6 – 15 flowered ----- *D. fimbriatum*

Dendrobium aphyllum (Roxburgh) C.E.C. Fischer in Gamble, Fl. Madras 8: 1416. 1928.

Limodorum aphyllum Roxburgh, Pl. Coromandel 1: 34, t.41. 1795.

Epiphytic on tree trunks of roadside in tropical evergreen forests. *Stems* 80 – 150 cm long, nodes 3 – 4 cm apart. *Leaves* 10 x 3.5 cm, ovate-lanceolate, acute, base sheathing. *Inflorescence* 10 – 15 cm long, laxly many flowered. *Flowers* 4.5 – 5.0 cm across, pale rose with lips light yellow. *Lips* 3.2 cm long, orbicular, margin erose, pubescent.

Flowering: May – June

Occurrence: Kamphai, 200 m, K. Chowlu 0560 (under cultivation at Rajiv Gandhi University Botanical Garden).

Distribution: INDIA: Arunachal (Kameng, Lohit, Tirap), Meghalaya, Manipur, Mizoram, Nagaland, Tripura, Sikkim, West Bengal, Uttar Pradesh, Penninsular India, Andaman & Nicobar Islands. WORLD: India, Nepal, Bhutan, Bangladesh, Myanmar, Thailand, Malaya, Laos, Vietnam, China.

Dendrobium fimbriatum Hooker, Exot. Fl. 1: t.71. 1823.

Epiphytic in tropical wet evergreen forests. *Stems* 75 – 170 cm long, tapering towards the apex. *Leaves* many, 10 – 16 x 2.0 – 2.7 cm, oblong-lanceolate, acute. *Inflorescence* 8 – 12 flowered, lateral, lax. *Flowers* 4 – 5 cm across, yellow with dark purple blotch on lip. *Lip* margins deeply fimbriate, pubescent.

Flowering: April – May

Occurrence: Kamphai, 200m, K. Chowlu 0564 (under cultivation at Rajiv Gandhi University Botanical Garden).

Distribution: INDIA: Arunachal Pradesh (Kameng, Lohit, Subansiri, 500 – 1500m), Assam, Manipur, Meghalaya (Nongstoin, Scarely seen in wild), Mizoram, Nagaland, Tripura, Sikkim, West Bengal, Bihar, Orissa, Madhya Pradesh, Decan, Andaman Island. WORLD: India, Nepal, Bangladesh, Myanmar, Thailand, Vietnam, Laos, China.

Dendrobium aduncum Wallich ex Lindley in Bot. Reg. 28, Misc. 62. 1842.

Epiphytic in tropical evergreen forests. *Stems* 45 – 100 cm, sub-erect. *Leaves* 8 – 12 x 2.2 – 2.5 cm, linear-lanceolate, apex minutely bifid. *Inflorescence* laxly 4 - 9 flowered. *Flowers* 3 – 4 cm across, purple, translucent. *Lips* broadly elliptic, acuminate, ciliate.

Flowering: April – May

Occurrence: Kamphai, 200m, K. Chowlu 0563 (under cultivation at Rajiv Gandhi University Botanical Garden).

Distribution: INDIA: Arunachal Pradesh (Tippi), Manipur, Mizoram, Nagaland, Meghalaya (Cherapunjee, Jowai), Assam, Sikkim, West Bengal (Darjeeling, Kalimpong). WORLD: India, Bhutan Myanmar (Maymyo), Vietnam, China (Guangdong, Guanxi, Yunnan, Guizhou).

Dendrobium densiflorum Lindley in Wallich, Pl. As. Rar. 1: 34. f. 40. 1830 et Gen. & Sp. Orch. 90. 1830. Epiphytic on mossy barks in tropical wet evergreen forests. *Stems* erect, 25 – 35 cm long, clavate, 4-angled, gradually tapering towards base, few noded; *Leaves* ovate-lanceolate, acute. *Inflorescence* 15 – 20 cm long, 2-4 flowered, pendulous; *Flowers* 3.5 cm across, yellow with orange lip; *Floral bracts* 2.7 – 3.0 x 1.5 – 2.5 cm, broadly oblong, coriaceous, many-nerved, pale brown, curled; *Lips* 2.5 – 2.7 x 2.0 cm, orange yellow, sub-orbicular, retusus margined.

Flowering: March

Occurrence: Kamlang, 130 m, K. Chowlu 0559 (under cultivation at Rajiv Gandhi University Botanical Garden).

Distribution: INDIA: Arunachal Pradesh (Kameng, Lohit,), Manipur, Meghalaya (Cherrapunji, Nongstoin), Mizoran, Sikkim, West Bengal. WORLD: India, Nepal, Bhutan, Myanmar, Thailand, China.

Dendrobium moschatum (Buchanan-Hamilton) Swartz in Schrader, Neu. J. Bot. 1: 94. 1806.

Epidendrum moschatum Buchanan-Hamilton in Symes, Emb. Kingdom Ava: t.26. 1800; ed.2(3): 315. 1800.

Epiphytic in wet evergreen forests. *Stems* 100 – 180 cm long, erect or sub-erect, slightly tapering towards the apex. *Leaves* 12 – 15 x 2.8 – 3.5 cm, oblong lanceolate, acute or minutely notched. *Inflorescence* laxly few or many flowered. *Inflorescence* arising from the apical part of leafy or leafless stems; *Flowers* orange yellow, fragrant. Lips cup shaped, two dark maroon blotches inside.

Flowering: April – May

Occurrence: Kamphai, 200m, K. Chowlu 0562 (under cultivation at Rajiv Gandhi University Botanical Garden)

Distribution: INDIA: Arunachal Pradesh (Kameng, Lohit, Siang, Subansiri, Tirap), Sikkim, West Bengal. WORLD: India, Nepal, Bhutan, Myanmar, Java, Cambodia, Malaysia, Thailand, Vietnam.

Dendrobium nobile Lindley, Gen. Sp. Orch. 79. 1830.

Epiphytes, found growing in mossy tree barks in tropical evergreen forests. *Stems* tufted, 45 – 100 cm long, erect or sub erect. *Leaves* 7 – 10 x 2.0 – 2.6 cm, linear oblong, bifid apex. *Inflorescence* 2 – 3 flowered, lateral. *Flowers* purplish white; lips ovate-oblong, purple at tip with a deep purple blotch in the centre, margins erhose.

Flowering: February – March

Occurrence: Kamlang, 130 m, K. Chowlu 0561 (under cultivation at Rajiv Gandhi University Botanical Garden)

Distribution: INDIA: Arunachal Pradesh (Kameng, Lohit, Siang, Subansiri, Tirap 1000 – 1500 m), Orissa, Sikkim, West Bengal (Darjeeling), Manipur (Ukhrul), Meghalaya (Shillong). WORLD: India, Nepal (Dhankutta, Detang), Bhutan, Myanmar, Laos, Vientnam, Vietnam, China, (Yunnan).

CONCLUSION

The climate of Arunachal Pradesh supports a large number of beautiful and important orchid species. The Kamlang Wildlife Sanctuary too supports a great variety of orchid species but due to different developmental activities in the recent past the orchid flora has suffered a lot. Presently six species of *Dendrobium* are reported from the sanctuary. However, as most of the areas in the sanctuary are yet to be properly explored for their orchid wealth, further studies are suggested. Species like *Dendrobium densiflorum*, *D. nobile*, *D. aduncum* are not common in distribution and therefore there is an urgent need to conserve these species for sustainable use in the state.

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