



***Dendrobium panduratum* Lindl. (Orchidaceae): Two Subspecies Additional Record to Karnataka, India**

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Abstract

The current survey reporting the two new sub species from Karnataka region, which are collected from Chikmagalur district, Karnataka, India and based on some evidences, got to know that *Dendrobium* species which are little bit confused with another species *Dendrobium heyneanum* Lindl. through other reported lists. Based on morphological keys, which are motives for two sub species called *Dendrobium panduratum* Lindl. subsp. *panduratum* and *Dendrobium panduratum* Lindl. subsp. *villosum* Gopalan & Henry. This article will clarify the species and sub species based on article sources from Tamil Nadu and Kerala Report.

Keywords: *Epiphytic Orchid, Green veins, Karnataka, Pink labellum, Subspecies.*

Introduction

The Orchidaceae are the most diverse of all angiosperm families with estimated number 26000 species in the world related to 762 genera (Mabberley, 2017). There are around 1256 species under 155 genera, of these 307 are endemic to India. *Dendrobium swartz* is the second largest genus in Orchidaceae having 114 species distributed throughout India (Jalal, J.S. *et al.*, 2019). In Karnataka there are around 176 species has been recorded, in that 15 *Dendrobium* species has been recorded (Rao, T.A. & S. Sridhar, 2007). Nayar, *et al.*, recorded *Dendrobium panduratum* subsp. *panduratum* from Kerala and *Dendrobium panduratum* subsp. *villosum* from Tamil Nadu and Kerala in the year 2014. Endemic Flowering {Plants of India has recorded *Dendrobium panduratum* subsp. *villosum* is endemic to Tamil Nadu (Singh, *et al.*, 2015). Flora of Karnataka, Volume 3 Monocotyledons has recorded 175 species with 16 *Dendrobium* species in it (Laxminarasimhan, P. *et al.*, 2019). Flora of Karnataka by Karnataka Biodiversity Board includes around 197 species of Wild Orchids,

in that they have recorded 18 *Dendrobium* species (Karnataka Biodiversity Board, 2019).

During our field survey in Devarmane, Mudigere, Chikmagalur district, Karnataka, got some *Dendrobium* species those have been collected and studied with morphological characters give some evidences for confirmation of the species as *Dendrobium panduratum* Lindl. Based on the Karnataka listing with lot of confusions in morphological keys with *Dendrobium heyneanum* Lindl (Karnataka Biodiversity Board, 2019). which is different from *Dendrobium panduratum* Lindl. with flower size, pinkish-white flowers, labellum panduriform, glabrous within labellum, and reddish-green veins on side lobes of labellum and conformed this as a *Dendrobium panduratum* Lindl. subsp. *Panduratum* (Sulaiman, M. 2021). Than after few days another flowered fully opened and have characters similarly about flower size, colour, labellum panduriform, villous within labellum, and green veins on side lobes of labellum. Then we studied some literatures, based on that, got to know that species as

Dendrobium panduratum subsp. *Villosum* (Gopalan, R. & Henry, A.N. 1990) These two subspecies have been reported from Kerala and Tamil Nadu (Jalal, J.S. *et al.*, 2019). Then concluded that the two subspecies are new records to Karnataka state.

Materials and Methods

Study Area

The district of Chikmagalur is situated in the south-western part of the state along the beautiful green Western Ghats. It is divided into two sub-divisions, tarikere and chikmagalur sub division. Chikmagalur sub-division includes taluks of Chikmagalur, Koppa, Mudigere and Sringeri whereas the Terikere sub-division comprises the taluks of tarikere, Kadur, Ajjampura and Narasimharajpura. Mudigere is around 915 meters altitude which covers 15 % forest area around 30,604 hectare. Rainfall exceeds around 2500 mm (Parashurama, *et al.*, 2016). Devarmane is situated near Dandihalli village, which is viewpoint with panoromic view at higher altitude; it is about 952 meters altitude with covering grasslands, shrubs and some trees with huge diversity of flora and fauna.

Results

Dendrobium Swartz.

Epiphytes, herect or pendulous, tough or fleshy, pseudobulbs, sheathing during flowering. Leaves sessile, sheathing at base, one or two at the top of pseudobulbs or many, linear to lanceolate, oblong or ovate, apex 2-lobed or notched, absent or present during flowering. Inflorescence axillary or from base of pseudobulbs, racemes with one or many flowered. Sepals subequal, free. Petals similar, free. Labellum sessile or adnate to foot of column to form mentum. Anther cap contains two sacks. Pollinia 2 pairs, caudicle absent. Capsules ovoid or sub Ovoid, ridged (Baishnab, B. 2019).

Dendrobium panduratum* Lindl.,** J.Proc. Linn. Soc., Bot.3: 19. 1859. Subsp. ***Panduratum.

Epiphytic, 15-20 cm long, pendulous. Stem 5-8 x 3 cm across, in two forms that is green and

pinkish with sheathing, flat. Leaves linear, lanceolate, sessile, acute apex, 5-8 in number, 3-8 x 0.5-1.2 cm across, young leaf are brownish orange, withers during flowering. Inflorescence 4-6 cm long, zig-zag, brown, terminal ro axillary, pinkish white flowers, absence of leaves during flowering. Bract minute, transparent like, brownish, 0.1 mm long. Flower pinkish white, 1 x 1.5 cm across, scented like coconut oil. Sepals and petals white. Dorsal sepal oblong-lanceolate, acuminate apex, 0.6 x 0.3 mm across, white. Lateral sepals linear, acuminate, 0.5 x 0.2 mm across, white. Petals obtuse, acuminate, not fringed at middle, 1-nerved, white 0.9 x 0.3 mm across. Labellum whitish pink, two pink calli at the midlobe villous, 1.2 x 0.6 cm across; Side lobes have 5-6 nerves with pinkish shade, panduriform at the mentum, nerve branched at the mentum, 0.6-0.8 mm long. Column pinkish white, 1 x 0.2 cm across, stigmatic cavity with fluid. Anther cap 0.1 x 0.1 mm across, white, smooth, with 2 sacks. Pollinia 2 pairs, golden yellow, long, absence of caudicle or stipe. Ovary 1 cm long, slightly bent, pink with nerves on it. Fruit 1.4 x 2 cm across, green, globose, ridges present.

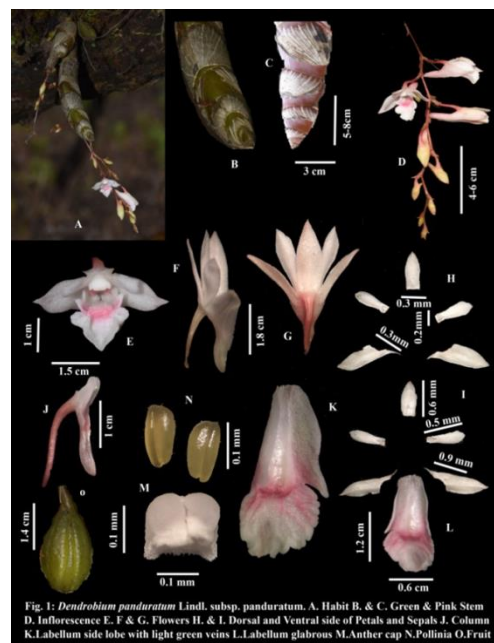


Fig. 1: *Dendrobium panduratum* Lindl. subsp. *panduratum*. A. Habit B. & C. Green & Pink Stem D. Inflorescence E. F & G. Flowers H. & I. Dorsal and Ventral side of Petals and Sepals J. Column K. Labellum side lobe with light green veins L. Labellum glabrous M. Anther cap N. Pollinia O. Fruit

Habit: Pendulous Epiphytic herb.

Habitat: At high altitudes 1000m above, on shrubs with mosses near to ground, grown

with *Dendrobium jerdonianum* Wight, *Aerides crispum* L.

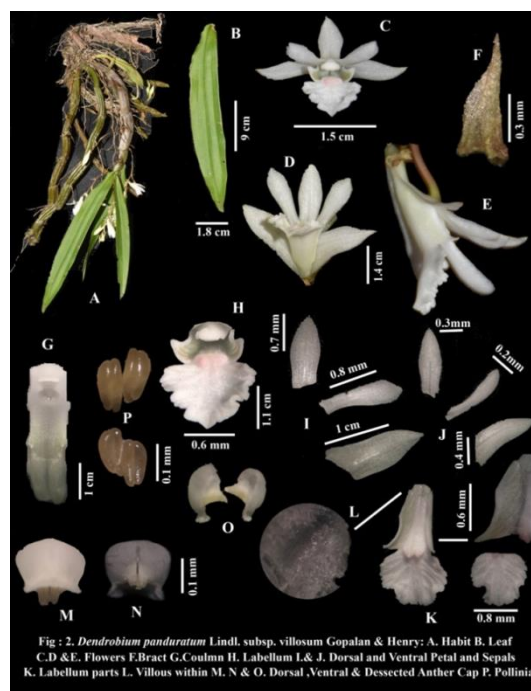
Flowering and Fruiting: April-June.

Distribution in India: Karnataka (present addition), Kerala, Tamil Nadu.

Specimen Examined: Devarmane, Kottigehera, Mudigere, Karnataka, India, 2022, Shreyas B. and K. Kotresha, GPS Co-ordinates: 13°03'38.1"N 75°32'26.5"E. Collector no. 0082, dated: 30-04-2022, Herbarium of Karnatak Science College, Dharwad (HKSCD).

***Dendrobium panduratum* Lindl. subsp. villosum Gopalan & Henry.** Journal of Bombay Natural Hist. Soc. 87: 128. 1990;

Epiphytic, pendulous, 25-30 cm long. Stem green with sheathing, bent, zig-zag like, presence of leaves during flowering, 10-15 x 2.5 cm across. Leaves entire, linear-lanceolate, acute apex, 9 x 1.8 cm across, 3-veined, young leaves are brownish orange to green, 5-8 in number. Inflorescence zig-zag, pendulous, arise terminally or axillary, white flowers, 3-7 cm long, brownish-green scape. Bract 0.3 mm long, transparent yellow-brown, truncate base and caudate apex. Flower 1.2 x 1.4 cm across, white, sweet scented and reduces in evening. Sepals and petals white. Dorsal sepal white, 0.7 x 0.3 mm across, elliptic, obtuse-mucronate, 3-veined. Lateral sepals white, obtuse-mucronate, 0.8 x 0.3 mm across, 3-veined. Petals fringed above the middle, obtuse, acuminate, 1 x 0.4 cm across, 3-veined, white. Labellum white, panduriform, 1.1 x 0.6 cm across, midlobe villous, side lobes 0.6 mm long, with 5-6 green nerves on it, mentum ovate, branched upto edged, incurved 0.8 mm long. Column pure white, 1cm long with stigmatic cavity. Anther cap white, 0.1 x 0.1 mm across, with 2 sacks in it, soft. Pollinia 2 pairs, 0.1 mm long, yellow, absence of caudicle and stipe. Ovary green in color, bent, 0.8 cm long. Fruits globose.



Habit: Pendulous Epiphytic herb.

Habitat: At high altitudes 1000m above, on shrubs with mosses slightly higher from ground in shades, grown with *Sirhookera lanceolata* (Wight) Kuntz., *Aerides crispum* L.

Flowering and Fruiting: May-July.

Distribution in India: Karnataka (present addition), Kerala, Tamil Nadu.

Specimen Examined: Devarmane, Kottigehera, Mudigere, Karnataka, India, 2022, Shreyas B. and K. Kotresha, GPS Co-ordinates: 13°03'39.6"N 75°32'27.5"E. Collector no. 0070, dated: 19-04-2022, Herbarium of Karnatak Science College, Dharwad (HKSCD).

Dichotomus Key to *Dendrobium panduratum* Lindl. Subspecies in Karnataka

1. Flower 1.2 cm, pinkish white, Coconut oil scented, labellum panduriform, villous at midlobe, pinkish labellum, reddish green veins on side lobes*D. panduratum* subsp. *panduratum*

1. Flower 1.5 cm, pure white, sweet scented, labellum panduriform, villous within, white labellum, 5-6 green veins on side lobes*D. panduratum* subsp. *Villosum*

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