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GEODORUM DENSIFLORUM (LAM.) SCHLTR. NEW DISTRIBUTIONAL RECORD FROM YAWAL WILDLIFE SANCTUARY, JALGAON, MAHARASHTRA, INDIA

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ABSTRACT

Yawal Wildlife Sanctuary is home to rich orchid flora, harbouring more than 20 orchid species generally found in moist deciduous and dry deciduous forests. Present paper deals with addition of *Geodorum densiflorum* (Lam.) Schltr. a rare orchid species from Yawal Wildlife Sanctuary. This species is rare to Khandesh region and Maharashtra, India also. In present research article morphological description, precise location and photographs of the described species are provided based on recent observations.

Keywords : *Geodorum densiflorum*, Yawal Wildlife Sanctuary

Introduction

Yawal Wildlife Sanctuary is situated on the extreme northern periphery of Jalgaon district of Maharashtra India, bordered by Aner River (a tributary of Tapi) at the north. Satpuda hill ranges serve as barrier blocking the monsoon clouds coming from Arabian Sea resulting in heavy rainfall in the hilly region. Due to good rainfall, high altitude, distinct geographical location and other suitable ecological factors, sanctuary shelters healthy population of flora and fauna found in moist and dry deciduous forests. For long time this area remained understudied for its vivid but less explored flora and fauna. Recent floristic explorations in Yawal Sanctuary have been revealing rich orchid flora of sanctuary. Around 104 species of orchids are found in Maharashtra (Jalal, 2019). Out of these 21 species of orchids, 7 epiphytic and 14 terrestrial, belonging to 11 genera, are found in Yawal Wildlife Sanctuary (Khan, 2018; Sonawane, 2020). Some noteworthy orchid species such as *Luisia tristis* (G.Forst.) Hook.f., *Peristylus stocksii* (Hook. f) Kraenzl., *P. constrictus* (Lindl.) Lindl., *Habenaria marginata* Coleb., *Dendrobium peguanum* Lindl. are found in Sanctuary. During our recent floral exploration visit to sanctuary we succeeded in adding one more species to the orchid flora of sanctuary. The species was photographed and its vegetative and morphological characters were documented in its natural habitat. The species was identified as *Geodorum densiflorum* (Lam.) Schltr. Present paper is the new distributional record of this orchid species from Yawal Wildlife Sanctuary and it is an addition to the orchid flora of Jalgaon district and Khandesh region comprising Jalgaon, Dhule and Nandurbar districts.

Materials and Methods

During our botanical explorations in Satpuda hill ranges of Jalgaon district, we encountered a terrestrial orchid species. Detailed morphological examination of the specimen observed, with the help of literature confirmed it as *Geodorum densiflorum* (Lam.) Schltr. The precise

geographical co-ordinates of the location were recorded using GPS enabled digital camera. All macro-morphological characters, such as vegetative and floral structures were recorded in the field. Fresh specimen was collected for critical study. The voucher specimens has been deposited in the herbarium collection of School of Environment and Nature Conservation, Jalgaon, Maharashtra India. The specimens examined were identified with the following relevant literature (Cooke, 1908; Hook, 1890; Santapau & Kapadia, 1966; Lakshminarasimhan *et al.*, 1996; Patil, 2003; Jalal, 2018; Almeida, 2009; Pande *et al.*, 2010).

Results and Discussion

Geodorum densiflorum (Lam.) Schltr. in Fedde, Repert. Beth. 4:259, 1929; Santapau & Kapadia, Orch. Bombay 203, 1966; S.M.Almeida, Fl. Savantwadi 2: 11. 1990; Lakshmin. in B.D.Sharma & al, Fl. Maharashtra: Monocot. 32. 1996; M.R. Almeida, Fl. Maharashtra 5A: 51. 2009; Pande et al, Orch. Nor.West. Ghats, 82. 2010; J.S.Jalal, Orch. Maharashtra, 108. 2018. *Limodorum densiflorum* Lamk. Encyclop. 3: 516. 1789. *Geodorum purpureum* R. Br. in Ait., Hort. Kew. Ed. 2, 5: 207, 1813; Hook. f., Fl. Brit. Ind. 6: 16, 1890. *G. dilatatum* Cooke, Fl.Pres. Bombay 2: 695, 1907. 'Haryakand' 'Dorli-amri'.

Terrestrial herb. 20-40 cm tall. Pseudobulbs 2-3, 4-5×3cm, ovoid-conical, greenish-brown with transverse circular bands. Leaves 2-3, forming a pseudostem; the leaves 15-20×3-7 cm, sheathing at base, glabrous, plicate, many-nerved, elliptic or elliptic-lanceolate, acute, entire, the upper ones tapering into a long narrow petiole. Scape 20-40 cm tall, lateral, terete, green, with a few oblong-lanceolate sheaths, arising from base of newly developed foliar shoot, taller than leaves, apical part slightly decurved during flowering, erect during fruiting. Inflorescence about 4 cm long, compact sub-corymbose raceme, slightly decurved or facing horizontally rarely downwards. Flowers 1.5 cm across, pinkish-white to pinkish-purple, opening completely (unlike described in

literature), bracteate, shortly pedicellate. Bracts 1.2-1.6 × 0.2 cm, pale green-green, narrowly lanceolate, acute or sub-acuminate, entire, glabrous. Sepals 3, 1.2×0.4 cm, 5-nerved, subequal, white- greenish white or white flushed with very pale mauve, acute, entire; dorsal sepal elliptic-oblong, slightly broader; lateral obliquely ovate-oblong. Petals 3, 1.5×0.6 cm, similar to sepals but slightly broader, elliptic-oblong, acute, entire, 3-nerved, midnerve thickened and forms a ridge on the back. Lip boat-shaped, white flushed with pale pink or mauve on the outside, inside with deep purple veins on the sides, a central yellow disc bordered with deep mauve; lip obscurely 3-lobed; lateral lobes broad, middle one crenulate, emarginate. Column 5×2 mm, short, oblong, white, sub-clavate, dilated above. Capsules drooping, 4.5×2.5 cm, oblong-ellipsoid, strongly ribbed.

Flowering and fruiting : June-November.

Elevation : 800m.

Specimen examined : Helapani LMS 0056(SoENC), Jalgaon dist., Maharashtra.

Distribution : In Maharashtra it is reported from Amravati, Gadchiroli, Kolhapur, Nashik and Sindhudurg.

Habitat and Ecology : Found in partially shaded places, among bushes and grasses, undergrowth of semi-evergreen and moist-deciduous forests between 400-800m elevation. Leaves and flowers emerge simultaneously with the advent of first showers. Forms large colonies. At present location around 200 individuals were seen forming a carpet on the hill slope, amongst Bamboo and Karvi vegetation.

Note- At present location the flowers are opening completely unlike described in available literature and the inflorescence is not completely downward facing but only decurved at right angles. Paste of pseudobulbs is mixed with sugar and used for the treatment of Diabetes.

Conclusion

On perusal of pertinent literature published till today on orchid flora of Khandesh region (comprising of Jalgaon, Dhule and Nandurbar districts) and Maharashtra state, it was observed that *Geodorum densiflorum* (Lam.) Schltr. is not earlier reported from Khandesh region of Maharashtra state (Lakshminarasimhan, 1996; Patil, 2003; Kshirsagar, 2008; Almeida, 2008; Jalal, 2018; Khan, 2019.). Thus this species has been reported for the first time from Jalgaon district of Khandesh region of Maharashtra state. This clearly reveals, this species is rare to flora of Khandesh region and even to the flora of Maharashtra. *Geodorum densiflorum* (Lam.) Schltr. is distributed sporadically across high altitude hilly forests in Maharashtra, especially Western Ghats to the west and Satpuda hills in Amravati, Gadchiroli districts to the east. Hence present paper is the new distributional record of this species away from its known range of occurrence and is an addition to the flora of entire Khandesh region. Cattle grazing, encroachment, habitat destruction and fragmentation of forests are the major threats to this rare ground orchid. Implementation of orchid centric conservation measures is essential to conserve and protect unique habitat of this enthralling floral wonder of nature.



Fig. 1: *Geodorum densiflorum* (Lam.) Schltr. A: Habit B: Leaves C: Ground colony D: Pseudobulbs



Fig. 2 : E-F: Inflorescence G: Close up of flowers showing boat-shaped lip with yellow centre. H: Capsule.

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