

OCCURRENCE OF *OPHIOGLOSSUM NUDICAULE* L. IN SATPUDA RANGE OF MAHARASHTRA, INDIA

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ABSTRACT

Khandesh region of Maharashtra part of Satpuda ranges exhibits unique topographical and climatic conditions that support rich Pteridophyte flora. The paper reports for the first time populations of *Ophioglossum nudicaule* L. of the family Ophioglossaceae from a new locality, Satpuda range in the Khandesh region of Maharashtra, India. This paper describes the *Ophioglossum nudicaule* L. along with images and the distributional pattern in the Satpuda range of Khandesh region.

Keywords: *Ophioglossum nudicaule* L., Satpuda range, Khandesh region

INTRODUCTION

The Order Ophioglossales is a natural group of premature vascular plants which reveal the most simple and most intricately mixture of characters compared to bryophytes, progymnosperms, gymnosperms and angiosperms (Goswami, 2007). It includes a single family Ophioglossaceae, which is of eusporangiate ferns discovered by Bauhin (1620) and is a cosmopolitan in distribution. The family consists of 3 genera viz. *Botrychium* Sw., *Helminthostachys* Kaulf., *Ophioglossum* L. (Clausen 1938) and the recently described genus *Mankyua* (Sun *et al.*, 2001). The present work focus on the genus *Ophioglossum*, was described by Bauhin (1620) and validated the generic status by Linnaeus (1753) and included it in his 'Species Plantarum'. More than 45 species and a few varieties the genus *Ophioglossum* are known so far worldwide (Pichi-Sermolli 1958, Yadav & Goswami, 2010). In India the genus is represented by 12 species (Goswami *et al.*, 2008).

Whereas 6 species were reported by Bhuskute in 1999 from Maharashtra. For them, there is no authenticated studied was carried out on the genus *Ophioglossum*. During the frequent survey of petridophytes the author collected *Ophioglossum nudicaule* L. a new distributional records from Satpuda range of Khandesh region. A note on the genus *Ophioglossum* along with the photographs is also given for easy identification.

Satpuda range of Khandesh region is an ignored geographical area by Indian pteridologist. Khandesh region comprises of three districts Nandurbar, Dhule and Jalgaon. It lies between 20° 8' and 22° 7' North latitude and 73° 42' and 76° 28' East longitude. Khandesh covers an entire area of 26,703.36 sq. km extending nearly 257.44 Km along. Satpuda range of Khandesh region lies at the North Western corner of the Deccan plateau, in the valley of the Tapti river, and is restricted in the North by the Satpuda ranges, in the east by the Berar (Vidarbha) region, in the south by the hills of Ajanta, belonging to the Marathwada region of Maharashtra, and in the West by the Northern most ranges of the Western Ghats, and outside that the coastal plain of Gujarat. Along the entire Northern frontier, the district is restricted by the Satpuda ranges, a mountainous tract from 48.27-64.36 km wide. The climate of Satpuda range is supportive to the luxuriant growth of pteridophytes. This species occurs in the rainy season and in winter season during the month of July-November.

Mostly the *Ophioglossum nudicaule* L. found in moist sand and clay soils in shady habitats.

MATERIALS AND METHODS

Satpuda ranges, which is one of the major hotspot of plants in Khandesh region. While working on pteridophytes of Khandesh region of Maharashtra State, we undertook frequent collection tours in every season during the month of July–November to collect Specimens. The outcome of the collection tour was the new taxa of *Ophioglossum nudicaule* L. is the first records for Khandesh region of Satpuda range. The morpho taxonomical analysis of the population was pursued after selecting fresh and previously preserved plants in 4% formalin (Bowers, 1964). External features were studied under stereo microscope. All taxa have been identified with the help of available literature (Singh *et al.*, 2009, Patil and Dongare 2014 & 2017 and Gazi *et al.*, 2023) identification and confirmation of specimens by expert opinion. The voucher specimens are deposited at the Department of Botany, H.J. Thim College of Arts and Science Mehrun Jalgaon, Maharashtra.

RESULTS AND DISCUSSION

Due to human interference, anthropogenic activities and grazing animals the pteridophytes from Satpuda range of Khandesh get disturbed. Considering the ecological importance, sensitivity and vulnerability of pteridophytes to changing environment, it is most essential to enlist pteridophytes through periodical survey and revision. Therefore, proper documentation is needed for conservation of these ecologically important plants before their extinction. While exploring the study area *Ophioglossum nudicaule* L. have been collected from satpuda range of Khandesh region detailed descriptions are given below:

Ophioglossum nudicaule L. F. Suppl. Pl. Syst. 443 (1781); Beddome, Handb. Ferns Br. India, 464, t. 228 (1883); Beddome Handb. 106 (1974); R.D. Dixit, Cens. Ind. Pterid. 23 (1984); Manickam & Irudayaraj, Pterid. Fl. West Ghats: 48-49. t. 27 (1992); Chandra, Ferns India 9 (2000); Pullaiah *et al.*, Pterid. Andhra Pradesh. 29 (2003). *Ophioglossum capense* Sw., Schard. Journ. 1801(2): 308 (1803). *Ophioglossum capense* Schlech. var. *nudicaule* (L.) Schlech., Fil. Prom. Bonae Sp.: 9 (1825). *Ophioglossum ellipticum* Hook. & Grev. Icon. Filic. t. 40 A (1828). *Ophioglossum lineare* Schlechter *et* Brause, Bot. Jerb., 49: 59, (1912). *Ophioglossum lueri* Prantl, Ber. deut. Bot. Ger. 1: 352 (1883). Fig.1.



Fig. 1. *Ophioglossum nudicaule* L. A. Habit B. Blade C. Sporangia

A terrestrial, small, erect herb, 3–8 cm tall. Rhizomes subglobose erect, 3.0–4.5 mm height with 2.0–2.5 mm diam., bearing many soft fibrous roots. Roots unbranched, yellowish to pale brown, 1.5–2.5 cm long, with 0.5–1.0 mm diam. Stem cylindrical, pale green, upright, 0.5–1.8 cm, 0.8–1.5 mm diam., most parts being buried underground, usually bearing 1–2 fronds per plant. Sterile lamina 1.2–1.8 × 0.4–0.6 cm; trophophore stalk 2–4 mm, trophophore blade spreading, green, elliptic or elliptic-ovate, 1.0–1.5 × 0.4–0.6 cm, fleshy, cuneate, entire, acute or rounded; Venation indistinct due to thick and fleshy texture of blade. Fertile spikes arise from the base of the sterile lamina, 2.8–8.5 cm long, light green, cylindrical. Sporophore

Distributional Record (Open Access)

2.5–7.5 cm long, 0.7–1.0 mm diam.; sporangial clusters 0.8–1.3 cm long, 1.0–1.5 mm diam., apex acute, usually bearing 10–18 pairs of sporangia.

Sporophytic stage: July to November.

Ecology: Vulnerable (V) species found in moist sand and clay soils in shady habitats and also grows in patches on fully exposed localities of open grassland habitats in Satpuda range.

Specimens examined: India, Maharashtra, Jalgaon District Tidya: *TAK 73* (CAL), 25.08.2024; *TAK 94* (CAL), 25.08.2024; Nandurbar Dist., Molgi, *TAK 103* (CAL), 01.09.2024.

GPS Reading: N 21° 15' 55.93" E 75° 48' 57.91" (Elevation 631.3 m)

Distribution in Maharashtra: In Maharashtra distributed in Western Ghats and first distributional record for Satpuda range of Khandesh region of Maharashtra.

Uses: It is used as medicine in the treatment of anti-inflammatories and wounds and as a vegetable or salad.

ACKNOWLEDGEMENT

The author wish to express his gratitude to Dr. Sachin M. Patil, Department of Botany, Shivaji University, Kolhapur, who confirmed the identity of this species and also providing the literature. Thanks are also due to the Principal, H.J. Thim College, Jalgaon, for providing laboratory and library facilities.

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