International Journal of Innovative Scientific Research
2025, Vol. 3, Issue 3, pp. 9-11

International Journal of
Innovative Scientific Research

Journal homepage: https://ijisr.net

Review paper

# Note on Occurrence of Psilotum nudum (L.) P. Beauv in Gadchiroli District, (M. S.) India

**Vasanta I. Kahalkar** *[1], **Hemant B. Kamdi** [2], **Poonam V. Pate** [3], **Ravikiran S. Govekar** [4]

[1] *Department of Botany, Mahatma Gandhi Arts, Science & Late N. P. Commerce College, Armori, District Gadchiroli Maharastra, India*

[2] *Conservator of Forest, Nagaland, India*

[3] *Deputy Conservator of Forest, Sironcha Forest Division, Maharastra, India*

[4] *Chief Conservator of Forest, Revenue and Forest Department, Mantralaya, Madam Cama Road, Mumbai–400 032, Maharashtra, India*

**KEYWORDS**

Psilotum nudum

Primitive Pteridophyte

Parsewada nalla

Gadchiroli

**ABSTRACT**

*Psilotum nudum* (Psilotaceae) is recorded for the first time from the Gadchiroli District, Maharashtra. Morphology and ecology of the plant are provided. In addition, it is recommended that the species be conserved in Gadchiroli District.

## 1. Introduction

Psilotaceae (Psilotales) comprises two genera (Psilotum Sw., Tmesipteris Bernh.) and about 15 species of fern (Kenrick, 2000). In India the genus Psilotum consists of two species, *P. nudum* (L.) P. Beauv. and *P. complanatum* Sw. Most commonly, it grows erectly in crevices among rocks, but it may also grow as an epiphyte on tree branches (Sporne, 1962).

*P. nudum* is fairly common in tropical and subtropical parts of both hemispheres (Singh et al., 2010). It is distributed throughout India in hilly regions (Dixit, 1984). Mahabale & Deshpande (1942) for the first time reported occurrence of *P. nudum* from Lonavala, Pune district, Maharashtra. These plants were found epiphytically on a tree of *Ficus retusa* on old branches (Mahabale, 1987). This genus is often grouped with the extinct Psilotales, the Rhyniales and Zosterophyllales dating from the Devonian some 400 million years ago (Roux, 2003). Among the vascular plants, they are considered as one of the oldest and the simplest. The word "Psilotum" is a Greek word while "nudum" is a Latin word; both of these words mean "naked" in the respective languages (Nazarian et al., 2010). It is the single living member of a populated division of the primitive times and has survived for about 400 million years (Yamazaki et al., 2001).

***Corresponding author**: Vasanta I. Kahalkar

DOI 105281/ijisr-2143025

In central India (Pachmarhi, Madhya Pradesh) this taxon is found growing in the crevices of moist rocks at dangerous places (Vasudeva & Bir, 1992). In south India it is found growing on the bases of tree trunk or on the adventitious root of coconut palms (Muktesh Kumar & Stephen Sequiera, 1998). In eastern Maharashtra it grows in the network formed by roots of *Ficus* sp. (Bhuskute, Kahalkar & Mendhe, 2005).

*Psilotum nudum* tops the list of endangered plants of India and its export is banned (Jain & Sastry, 1980). Though this taxon is reported from western and central Himalaya, central India and south Indian mountains, nowhere it is common (Bir, 1987). The taxon faces danger of extinction due to repeated collection by unscrupulous collectors and by students due to academic curiosity.

## 2. Ecology and Conservation

The locality is a moist microhabitat along the bank of Parsewada nalla (stream) which has its origin in Bejjurpalli hills falls under Pranhita Sanctuary. The species might have been restricted here due to the typical edaphic factors and moist, shady habitat. Only a single population was found although the location was frequently visited many times. The plant was present in the patches on a stony rock crevice's where the water drips continuously. The rocky hill's predominant vegetation comprises grasses and *Ficus macrocarpa*. This species is rare, as evidenced by the fact that there is just one population in the collection region. Thus, in central India, the plant needs both in situ and ex situ protection. The voucher specimen was deposited in the Herbarium of Department of Botany, Mahatma Gandhi Arts, Science and Late N.P. Commerce College, Armori, Maharashtra.

## 3. Morphological Description

*Psilotum nudum* (L.) P. Beauvois, Prodr. Aethéogam. 112. 1805. Perennial small or medium size herb, rhizome prostrate, rhizoides present; stem green, herbaceous, erect, chlorophyllous and dichotomously branched, glabrous, glaucous; mainstem 10 –11cm x 0.1cm, secondary branches1.5 –2.5 cm x 0.1 cm, tertiary branches 9 –11 x 0.06 cm; internodes 0.3 –1.8 cm long, longitudinal ridges irregular, stem usually leafless. Leaves much reduced, minute, simple, adpressed to the stem, scale like, sessile, green, apex acute, margins entire. Synangia present on quaternary and upper branches, each synangium composed of three fused sporangia, sporangia yellowish, orbicular, smooth, glaucous, dehisce by single suture, bearing clusters of spores; spores white, appearing like powder, compactly arranged in side sporangia.

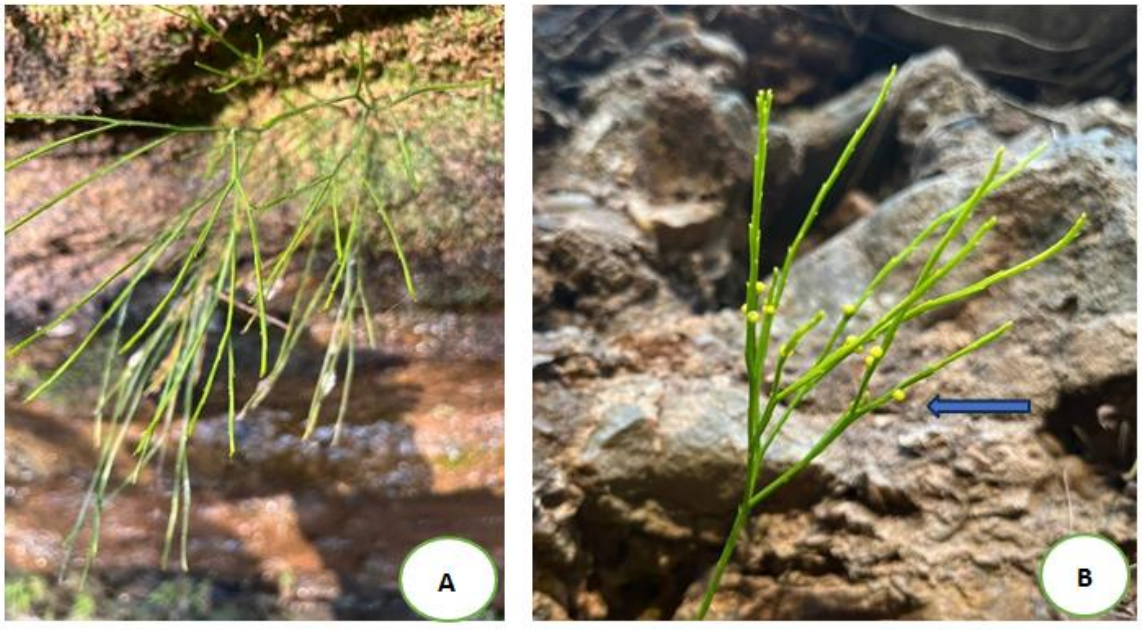


**Fig. 1** *Psilotum nudum* (L.) P. Beauv. A) Habitat and B) Synangia
*(Specimen examined: India: Maharashtra: Gadchiroli distr., Parsewada: V. I. Kahalkar 503.)*

## Acknowledgements

The authors are thankful to the Principal and Head Department of Botany, Mahatma Gandhi Arts, Science and Late N. P. Commerce College, Armori, for facilities and encouragement and thank Dr. Manoj M. Lekhak (Shivaji University**,** Kolhapur) for suggestion.

## References


1. Bhuskute, S. M., Kahalkar, V. I. and Mendhe B. K. (2005) Occurrence of Psilotum nudum (L.) P. Beauv. From Gondia District of Maharashtra State, India. Indian Fern J. 22: 189-190.
2. Bir, S. S. (1987) Pteridophytic flora of India: Endangered elements and their conservation Biology of Indian Pteridophytes Ed. S. S. Bir. pp. 215-221. Published by The Indian Fern Society, Patiala.
3. Dixit, R. D. (1984) A Census of the Indian Pteridophytes, Flora of India, Series IV BSI.
4. Jain, S. K. and Sastry A. R. K. (1980) Threatened plants of India- A State-of-the-Art Report Botanical Survey of India Howrah.
5. Kenrick, P. (2000) The relationships of vascular plants. Philosophical Transactions of the Royal Society B 355: 847-855.
6. Mahabale, T. S. and Deshpande G. S. (1942) Psilotum triquetrum Sw. at Lonavala, Bombay Presidency Curr. Sci. 2: 466.
7. Mahabale, T. S. (1987) Gazetteer of India, Maharashtra state, Botany and Flora of Maharashtra.
8. Muktesh Kumar and Stephen Sequiera (1998) Diversity systematics and taxonomy of epiphytic pteridophytes of Kerala part of Western Ghate, South India, Indian Fern J. 15: 106-130.
9. Nazarian, H., Taghavizad, R. and Khosravii, E. (2010) The first anatomical report and morphological reexamination of Psilotum nudum L., in Iran. Pakistan Journal of Botany 42(6): 3723-3728.
10. Roux, J. P. (2003) Swaziland ferns and fern allies. Southern African Botanical Diversity Network, Pretoria.
11. Sporne, K. R. (1962) The morphology of pteridophytes. Hutchinson and Company, New York.
12. Singh, V., Pande, P. C. and Jain D. K. (2010) Diversity of microbes and cryptogams. Rastigo Publication, India.
13. Vasudeva, S. M. and Bir S. S. (1992) Pteridophytic flora of Pachmarhi hills, Central-India-I (General account & families: Psilotaceae- Isoetaceae) Indian Fern J. 9: 153-173.
14. Yamazaki, Y., D. Y. Suh., W. Sitthithaworn, K. Ishiguro, Y. Kobayashi, M. Shibuya and U. Sankawa. (2001). Diverse chalcone synthase superfamily enzymes from the most primitive vascular plant, Psilotum nudum. Planta., 214(1): 7584.