

# A Distributional Record of *Bolbitis Subcrenatooides* Fras. -Jenk. From Matheran, Western Ghats, Sahyadri Hills, Maharashtra, India

Vitthal N. Rathod

P.G. Department of Botany, JET's Z. B. Patil College, Deopur, Dhule, 424002, Maharashtra, India

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## ABSTRACT

The authors are involved in the revision of fern of the Sahyadri hills in western ghats of Maharashtra state, India. Through studies on ferns of the western ghats Maharashtra. Now survey of a fern species was carried out in Matheran forest. The present paper deals with the extended and distributional record of *Bolbitis* genus. A *Bolbitis* species it was already recorded in Amboli, western ghats Maharashtra. During this study tour they came across a fern with dimorphic fronds which turned, now it is collected from this 'Forest on Top' area. It was calm from this region and known as *Bolbitis Subcrenatooides* Fras. -Jenk.

**Keyword's:** Dimorphic fern, Matheran, Sahyadri hills, Western Ghats.

## I. INTRODUCTION

Matheran is the smallest and dense forest in Maharashtra of India. It is situated on the series of Western Ghats at elevation of 800 m (2625 Feet) overhead marine level. The name Matheran means either 'Forest on Top' or 'Woodland overhead'. Matheran is an automobile-free hills situated in the Karjat taluka of the Raigad district located in the Indian state of Maharashtra. Matheran is located at 18.98°N 73.27°E. It has an average elevation of 800 m (2,625 ft) above sea level.

Semi-evergreen forests are present in the Matheran. The vegetations are perennial, construction the highland forestry identical solid and smooth overfilled in places. The laterite, absorbent loam laterally

through actual light rainwater diverse with thick fog has occasioned in exclusive vegetation ironic in variety on the upland.

The forestry shows plants in highest, central and crushed storeys. The plants system a shelter done a huge diversity of shade-loving herbs, climbers, ferns and mosses. The forestry of Matheran have concerned numerous botanists. It was declared an Eco-Sensitive zone (ESZ) by the Union Environment Ministry on 4 February 2003.

The fern genus *Bolbitis* is characterized by dimorphic fronds, forked, free or anastomosing venation and compressed fertile fronds. Numerous types of *Bolbitis* are public in the Western Ghats of South India (Annamalai's and Kerala Ghats, Ponmudi hills, Munnar hills, Sabarimalai, rare on the Tirunelveli

Hills) (see Beddome 1863-4, 1865-70, 1883, Manickam & Irudayaraj 1992, Nayar & Geevarghese 1993, Chandra 2000). The present authors are engaged in studies of the fern diversity of the Sahyadri Hills of the Western Ghats further north in Maharashtra State.

Throughout the development of botanical investigation in the Sahyadri Hills, a limited variety of *Bolbitis* remained collected. Checking the morphology and taxonomy of the specimens revealed that they belong to the new species, *Bolbitis subcrenatooides* Fras. -Jenk. (Fraser-Jenkins 2008), a nomen novum for *Acrostichum proliferum* Hook., non-Blume, which was formerly reported from South India as belonging to *B. subcrenata* (Hook. & Grev.) Ching. The present communication is intended to place on record for the first time the occurrence of *Bolbitis subcrenatooides* in the Sahyadri Hills of the Western Ghats in Maharashtra state, near Vishal Ghad, Kolhapur District. Neither this species nor *B. subcrenata* had previously been reported from as far north as Maharashtra.

## II. TAXONOMIC ACCOUNT

*Bolbitis subcrenatooides* Fras. -Jenk., Tax. Rev. Three Hund. Ind. Subcont-Pterid.: 346, 2008; nom. nov. for *Acrostichum proliferum* Hook., Icon. Plant. 7: 681-682, 1844, non-Blume, nec *Bolbitis x prolifera* (Bory) C.Chr. & Tardieu, Notul. Syst. 7: 102, 1938.

Misapplied names: *Bolbitis subcrenata* (Hook. & Grev.) Ching in C.Chr., Index Fil. suppl III: 50, 1934; Nayar & Kaur, Bull. Natl. Bot. Gdns. Lucknow 88: 63, 1964; Comp. Bedd. Handb.: 102, 1974; Hennipman, Leiden Bot. Ser.2: 176, 1977; Sledge, Bot. J. Linn. Soc. 84: 19, 1982; Dixit, Census Ind. Pterid.: 162, 1984; Nayar & Geevarghese, Fern Fl. Malabar: 240, 1993; Rajagopal & Bhat, Indian Fern. J. 15: 22, 1998; Chandra, Ferns India: 237, 2000. *Acrostichum subcrenatum* Hook. & Grev., Icon. Fil.: t.110, 1829; Clarke, J. Linn. Soc. London, II Bot. 1: 58, 1880. *Campium subcrenatum* (Hook. & Grev.) C.Presl, Tent.

Pterid.: 239, 1836. *Gymnopteris subcrenata* (Hook. & Grev.) Bedd., Handb. Ferns Brit. Ind.: 437, 1883. *Campium bradfordii* Copel., Philipp. J. Sci. 37: 390, 1938.

Medium-sized dimorphic fern, with dark brown, creeping or erect rhizome, scaly throughout; scales ovate lanceolate; fronds simply pinnate (Figs. 1, 2). Sterile fronds c. 49 cm long, variable in degree and shape of dissection, pinnae c. 7-10 pairs, sessile, ovate c. 6-16 x 2.5-3.7 cm, simple or shallowly lobed, their bases gradually decreasing to a curved-cuneate base, the basal two pinnae sub-opposite; a single elongated, linear-lanceolate, acuminate sterile pinna, 21 x 1.4 cm, with a cuneate base and an entire or shallowly lobed margin, terminating in a proliferous bulbil, which often bears small roots. Midrib raised, venation of the bolbitid type, veins slightly distinct below, pinnae pale or dark green. Fertile fronds with a longer stipe, c. 27-36 cm long, adaxially-grooved; rachis narrowly winged and scaly. Fertile pinnae sessile, oblong, c.1.8-9.2 cm long, alternate, 6-8 pairs, margin entire or wavy with a distinct terminal segment, sori acrostichoid. Sporangia c. 0.28 x 0.15  $\mu$ m. Specimens collected were highly variable in shape and size of pinnae. The venation pattern was also variable. The plants are fertile in October and November

This species was previously known in S. India as *B. subcrenata*, described from Sri Lanka, but Fraser-Jenkins (2008) has pointed out that the Indian plants differ consistently from the Sri Lankan ones by the sterile fronds having a large, elongated or flagelloid apex (as opposed to an imparipinnate apex, sometimes becoming only slightly elongated), and by the fertile fronds having obviously longer pinnae than the short ovate ones of *B. subcrenata*. The Indian plants have therefore been said to belong to a distinct variety, or to be a possible hybrid. But the spores are not aborted as in hybrids and the morphology of the two species is consistently distinct. They were therefore separated on that basis.

**Comments:** The species was earlier recorded and described by the author in 2009 from Amboli ghat, Sahyadri Hills. Now the same has been reported from Matheran.

**Our collections are as follows:** Occasional in deep forest on hillslopes and nearby River shore. Vishal - ghad is situated at 16°53'N latitude and 73°45'E

longitude; about 76 km from Kolhapur, Maharashtra and Hiranyakeshi is situated at 16°11'N latitude and 74°40'E; 25 km from Sawantwadi in the Sindhudurga district of Maharashtra (Figs. 1,2).

**Exsiccata:** Matheran: VNR- 124. (Fig-3 &4,) 2022.



Fig-1- A. Plant Habitat-Amboli ghat

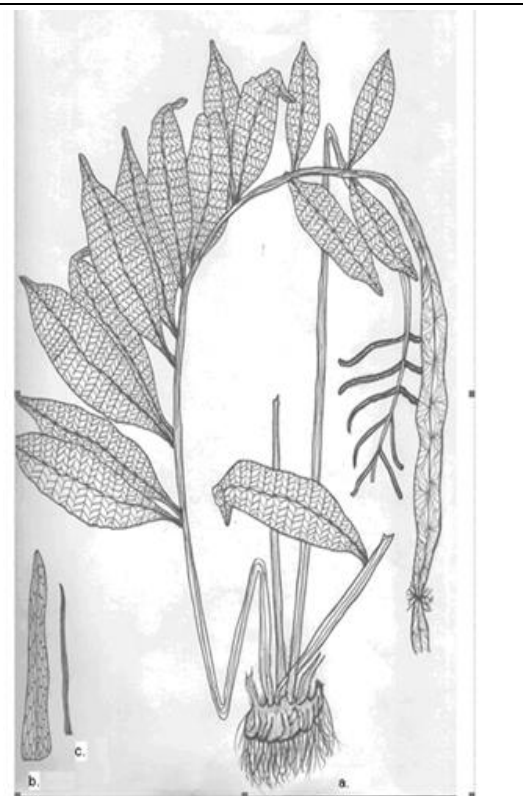


Fig-2- Illustration-Amboli ghat



Fig-3- Plant Habitat -Matheran



Fig-4- Plant Habitat- Matheran

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