

Endemic species of *Selaginella miniatospora* (Dalz.) Bak. (Selaginellaceae) - a new record for Tamil Nadu

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Abstract

The present paper reports new distributional record of *Selaginella miniatospora* (Dalz.) Bak. (Selaginellaceae) collected from the Yercaud Hills, Eastern Ghats, Tamil Nadu. In the present study taxonomic description, distribution and photograph of this newly recorded species are provided.

Introduction

The genus *Selaginella* P. Beauv. belonging to the family Selaginellaceae has about 700 species distributed throughout the tropics (Mabberley, 2008). In India 62 species were reported by Dixit (1992). The only comprehensive work on the Ferns of South India by R.H. Beddome (1864) included 271 species of ferns from South India and Sri Lanka. Kunze (1851) listed five species from the Nilgiri hills of the Southern Western Ghats. Alston (1945) enumerated 58 species of *Selaginella*, of which 45 species were reported from India.

Mehra and Bir (1964) and Reed (1965-66) reported the occurrence of a few additional species from India. Dixit (1984) and Manikam and Irudayaraj (1992) reported 18 species from South India. Out of 18 species, 14 species were reported only from Eastern Ghats of Andhra Pradesh and Tamil Nadu. Recently *Selaginella opaca* Warb. (Parthipan *et al.*, 2013) and *Selaginella eurynota* A. Braun. (Parthipan and Rajendran, 2013) both species reported as a new record to India from Tamil Nadu.

Recently, a species of *Selaginella* was collected during the floristics studies of the Yercaud Hills of the Eastern Ghats of Tamil Nadu. On critical examination and careful scrutiny of relevant literatures (Alston, 1945; Baishya and Rao, 1982; Barua *et al.*, 1989; Bhattacharya *et al.*, 1995; Bhattacharya *et al.*, 1998; Bir, 1976, 1987, 1993; Bir *et al.*, 1992, 1989; Borthakur *et al.*, 2001; Dixit, 1984, 1992; Dixit and Vohra, 1984; Dutta *et al.*, 1980; Fraser-Jenkins, 2008a,b; Handique and Konger, 1986; Islam, 1983; Jain, 1991; Kachroo *et al.*, 1989; Kaur and Chandra, 1994; Manickam and Irudayaraj, 1992; Mukhopadhyay, 2001; Nath and Bhattacharya, 2002; Panigrahi, 1960; Panigrahi and Choudhury, 1962; Panigrahi and Dixit, 1967a,b, 1968; Singh and Panigrahi, 2005; Thakur, 1962; Roy and Borthakur, 2013), it was identified as *Selaginella miniatospora* (Dalz.) Bak. So far known to occur only in Maharashtra, Goa, South Kanara and Assam. The present collection confirmed the occurrence of *Selaginella miniatospora* (Dalz.) Bak., therefore forms a new distributional record for Tamil Nadu.



Fig 1. *Selaginella miniatospora* (Dalz.) Bak.

Selaginella miniatospora (Dalz.) Bak., Journ. Bot. 23: 249. 1885; Handb., Fern Allies, 115. 1887; Alston, Proc. Nat. Inst. Sci. India 11. 227. 1943; Reed, Mém. Soc. Brotér. 18: 157. 1966; Dixit, Selaginell. India: 99, Plate LX, Figure 61A -H. 1992. *Lycopodium miniatosporum* Dalz. in Hook. Journ. Bot. 4: 114. 1852; Roy & Borthakur in *Asian J. Cons. Biol*, 2 (1): 79-81. 2013. (Fig 1.)

Semi-erect, plant body ca. 5-20 cm, terrestrial, found growing on the forest floor or on the inclined bases of hills or on the humus deposits on the rock surface. Light green young plants become pale-green to pale-brown at maturity. Primary stem is copiously-branched and the branches are erecto-patent. Rhizophores born and remain confined at the base of the primary stem. Vegetative leaves dimorphic, light green, distantly placed on the primary stem and branches exception at terminal position, denticulate, denticles minute and occur distantly; axillary leaves ca. 2.5-3 x 1.50-2mm, ovate, cordate, obtuse, entire, prominent mid-vain extends from the base to nearly apex; lateral leaves ca 2.5-3 x 1-1.25mm, ovate-oblong, obliquely-cordate at base and obtuse, inner-half of leaves semi-ovate, imbricated at base, outer-half of leaves semi-oblong; median leaves ca. 1-1.25 x 0.41-0.5mm, very small in comparison to other vegetative leaves, ovate, denticulate, cuspidate, apex acute. Ligule thin, membranous and lanceolate. Strobilli ca 5-7.5 x 2-2.5mm, one or two at branch apices. Sporophylls dimorphic; larger sporophylls ca

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1.75-2 x 0.40.5mm, lanceolate-rhomboid, minutely but regularly dentate, an extra membranous structure called laminar flap develop from the base of the sporophyll and extends to one third of its length; smaller sporophylls ca 0.50.85 x 0.35-0.41mm, semi-orbicular, cuspidate and uniformly dentate from the upper half of the leaf to apex. Microspore 20-30 µm, deep-yellow, verrucoid, trilete. Megaspore 180-225 µm, deep-yellow.

Anatomical characters: Section of the rhizophore shows a thick exterior layer of cuticle followed by the epidermis made up of a single layer of thick-walled cells. The cortical zone is divided into outer and inner cortex. The outer cortex, except 1-2 layer of thick-walled parenchymatous cell, is almost homogeneous and consists of a mass of large penta-hexa-heptagonal parenchymatous cells. Except for the smaller size of cells, the inner cortex is similar to that of outer cortex. Endodermis and pericycle are not clear. The stele at the center is protostele, where mass of exarch xylem is surrounded by phloem. Anatomy of stem shows similar features to that of rhizophore which is almost circular in outline except in some cases with marginal ridges. The cortex is made up of homogeneous mass of penta- or hexagonal parenchymatous cell sand followed by single layered endodermis. Trabaculae are found to be arisen from the inner wall of the endodermis which in turn consists of two-three layers of simple cells. There is a single vascular bundle (Roy and Borthakur, 2013).

Specimens examined: Yercaud Hills in Eastern Ghats of Tamil Nadu, 23 Nov. 2014, *Parthipan*, M. 219; (BUH).

Phenology: November – February.

Distribution: INDIA: Maharashtra, Goa, *South Kanara*, Assam and now in Tamil Nadu.

RET Status: Endemic to India (Dixit, 1992).

Ecology: Usually epiphyte or chasmo-endolithophytic (rock crevices) high altitude fern growing along shaded hills slope. The average maximum temperature 25°C.

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