

SHORT COMMUNICATION

***Thelypteris arbuscula* (Willd.) K. Iwats., a new record to the fern flora of Karnataka, India**A. Benniamin¹, Devendra Tripathi¹, M.S. Sundari², Jesubalan D¹ and Bagath Singh¹¹Botanical Survey of India, Western Regional Centre, Pune- 411001²Department of Botany, S.P. Pune University, Pune - 411007

ABSTRACT

Thelypteris arbuscula (Willd.) K. Iwats. is reported for the first time in Karnataka State. Description of the species, distribution map and photographs for easy identification of the species.

KEYWORDS: *Thelypteris arbuscula*, new report, Karnataka.

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Introduction

Thelypteridaceae is one of the largest fern families, having about 950 species and a cosmopolitan distribution but with most species occurring in tropical and subtropical regions. Its generic classification remains controversial, with different authors recognizing from one up to 32 genera. While some authors prefer to recognise many small genera, largely following, with modifications in the placement of certain species, the revisions of Ching and especially of Holttum and subsequently the molecular-cladistic revision (Smith *et al.*, 2006). All the minor genera are treated under a discrete and recognisable genus *Thelypteris*. About 10 % of these are known from India. India represents approximately 88 species and 3 subspecies have been reported (Fraser *et al.*, 2016). In Karnataka 23 species have been reported (Fraser *et al.*, 2016). During the course of studies on documentation of Pteridophytic diversity of Karnataka, particularly Kudremukh National Park, the authors came across an interesting fern collected from on the way to Peak of Kudremukh National Park (Fig.1). After critical studies and review of literature (Beddome, 1892, Benniamin, 2005, Chandra, 2000, Dixit, 1984, Devendra *et al.*, 2016, 2017, Dudani *et al.*, 2013, Fraser *et al.*, 2016, Manickam & Irudayaraj, 1992; Matchperson, 1986, Razi and Rao, 1971, Rajgopal &

Bhat, 1998, 2016, Holttum, 1976) it has been identified as *Thelypteris arbuscula* (Willd.) K. Iwats. As such it was recorded for the first time from Karnataka. It is interesting to note that *Thelypteris arbuscula* earlier recorded from Tamil Nadu, Kerala, Madhya Pradesh, Sri Lanka, E. Mainland Africa, Madagascar, Mascarenes. Brief taxonomic description, distribution map and photographs are provided in present communication for easy identification. The specimens studied are deposited in herbarium of Botanical Survey of India, Western Regional Centre, Pune (BSI) Maharashtra.

Taxonomic Description

Thelypteris arbuscula (Willd.) K. Iwats., Act. Phytotax. Geobot. 21 (5/6): 170. 1965. *Aspidium arbuscula* Willd., Linnaeus Sp. Pl., ed. 4, 5: 233. 1810. *Nephrodium arbuscula* (Willd.) Desv., Mem. Soc. Linn. Paris 6: 253. 1827. *Dryopteris arbuscula* (Willd.) Kuntze, Revis. Gen. Plant. 2:812. 1891. *Cyclosorus arbusculus* (Willd.) Ching, Bull. Fan Mem. Inst. Biol., Bot., 8: 194. 1938. *Sphaerostephanos arbuscula* (Willd.) Holttum, J.S. African Bot. 40 (2): 165. 1974. *Aspidium hookeri* Wall. ex Hook, Icon. Pl. 10: t. 922. 1854, non-Sweet. 1830. *Nephrodium hookeri* Houlston & T. Moore, Gard. Mag. Bot. 3: 294. 1851. *Nephrodium falcilobum* var. *Puberum* C.B. Clarke, Trans. Linn. Soc.

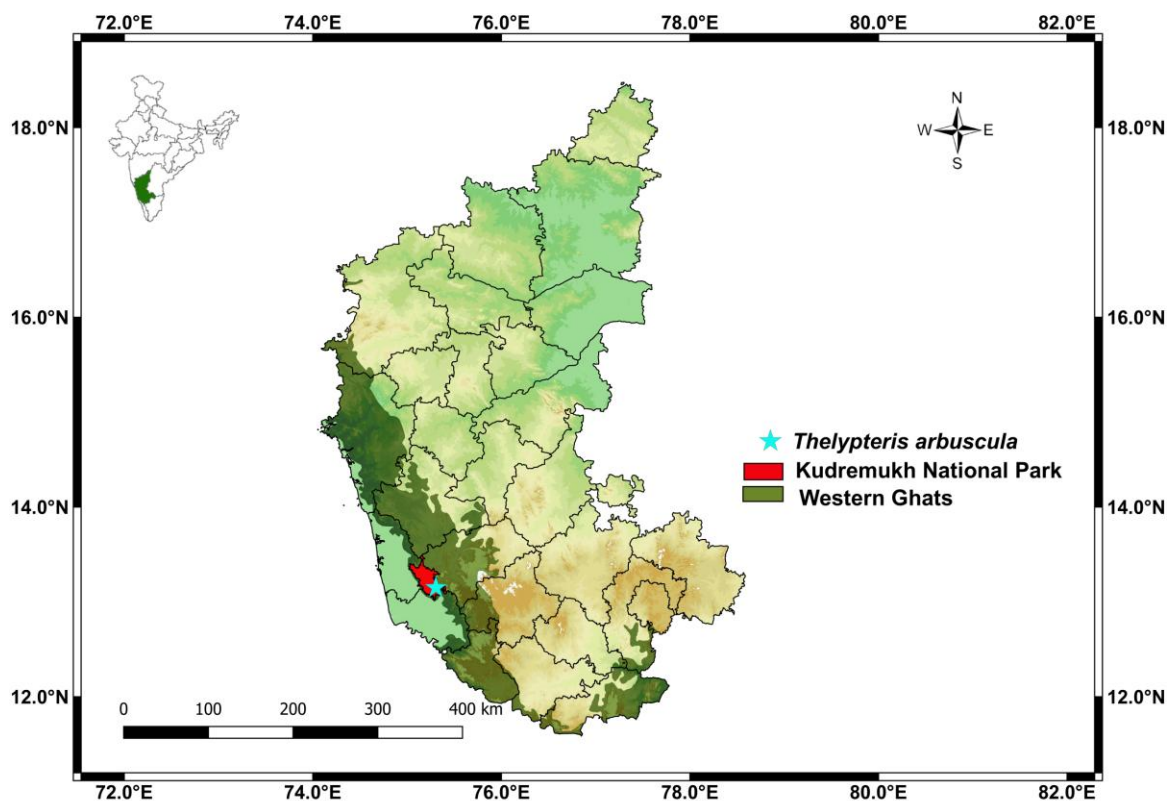


Figure 1. Distribution Map of *Thelypteris arbuscula* (Willd.) K. Iwats.

Lond., 2 Bot., 1: 515. 1880. *Sphaerostephanos arbusculus* subsp. *africanus* Holttum, J.S. African Bot. 40 (2): 165. 1974.

Rhizome caudex small erect and trunk like up to 4 cm thick, apex densely covered by scales, dark brown, lanceolate, 6×2 mm, margin entire, acuminate, stipes tufted, 3 mm thick, slightly pubescent; pale green, scaly at the base, abaxially rounded, adaxially grooved, short appressed hairs densely distributed along the grooves, fronds up to 30-45 cm long, pinnae up to 20 pairs, excluding the basal reduce ones, upto 8 pairs basal pinnae reduce, basal reduced pinnae ovate deltoid, apex acute, pinnate lanceolate in outline, pinnae numerous close, 5-8 cm long, very shortly petioled, rather blunt at the apex, margin entire, slightly crenate, generally auricled at the superior base, the margin with shallow serrates, lower ones gradually reduced to mere deltoid auricles; texture firm, herbaceous; veins 6-8 pairs, the 3-4 lower pair anastomosing the upper ones free,

rachis pubescent, upper surface glabrous in age, under surface more or less hairy on all the veins; sori medians on veins, up to four pairs, solitary near the middle of the 3-4 lower veins, indusium hairy small reniform, sporangial stalks bear glandular hairs; spores bilateral, $40 \times 28 \mu\text{m}$, light brown (Fig.2).



Figure 2. Habit of *Thelypteris arbuscula* (Willd.) K. Iwats from Kudremukh National Park, Karnataka.

Ecology

Terrestrial, very rare collected from one locality and it grows near streams on rocky open canopy forest.

Distribution

Asia: Sri Lanka; Africa: E. mainland Africa, Madagascar, Mascarenes. India: Karnataka, Kerala, Madhya Pradesh, Tamil Nadu.

Specimens Examined:

India, Karnataka, Chikmagalur District, on the way to Kudremukha Peak, (BSI, DT, 207901).

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