

## **POLYSTICHUM TANGMAEINSE (DRYOPTERIDACEAE) – A THREATENED FERN FROM ARUNACHAL PRADESH**

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### **Abstract**

This paper reports *Polystichum tangmaeinse* collected from Northern Arunachal Pradesh, India. This species can be distinguished from other Indian species of the section, by having all its stipe scales pale russet brown and concolorous and basal lobe of the pinnules also rounded with long hair teeth. Taxonomic description, ecology, status and distribution are mentioned in the paper.

**Key words:** India, Pteridophyta.

### **INTRODUCTION**

The genus *Polystichum* Roth (Dryopteridaceae) contains about 250 or more species in Asia (Fraser-Jenkins, 1991, 1997), with 46 species known from India. Most of them are distributed in the Sino-Himalayan region *Polystichum tangmaiense* H.S.Kung & Tateishi (1994), from Pome in S. Tibet is recognised tentatively here, providing there is no earlier name for this rare species. *P. oligocarpum* Ching ex H.S.Kung & L.B.Zhang (1995) is a similar specimen, which though maintained in the Flora Reipublicae Popularis Sinicae, might be a synonym. The species was first collected by Dr. William Griffith in 1836 in lower Debang Valley, Arunachal Pradesh. The second collection that came to attention was made by Dr. B. Ghosh and their party at Ukhrul, Manipur and it was misidentified by Fraser Jenkins as *P. makinoi* (Tagawa) Tagawa. A third collection was from Nagaland by Jamir and also misreported as *P. discretum*. Recently the present author collected the number of collections from Mayodia to Hunli, Lower Dibang Valley, Arunachal Pradesh. Based on the literature and Fraser Jenkins (pers. Commu) it was identified as *Polystichum tangmaeinse*

H.S.Kung & Tateishi However, difficulty in identifying this species is not so much due to a lack of possible names, but to a dearth of them, as there is a further species, which might perhaps be related or the same. *P. microphyllum* (Blume) C.Presl, is also similar to some Taiwanese specimens, all characterised by brown, rather than black scales. Phytogeographically *P. tangameiense* whose rang of variation has not previously been detailed in China. It is presumably to be expected in N. Myanmar, though the pteridophyte flora there is still so poorly known. Here, taxonomic description, geographical distribution and ecology of the species are provided.

***Polystichum tangmaiense* H.S.Kung & Tateishi** Acta Phytotaxonomica Sinica 32(3), 268–270 (1994).

Rhizome erect, densely scaly, scales brown scale brown-lanceolate, Stipe scales pale russet brown, Concolorous rarely basal scales dark broad-lanceolate, scales margin bear long teeth. Rachis dense, linear, russet brown scales and fibrils. Fronds caespitose, Fronds ca. 60–90 cm long, Stipes 7–10 cm, scale pale brown, linear to lanceolate, margin denticulate. Lamina

lanceolate to oblanceolate 30–40 cm long, 5–9 cm broad, apex acuminate, bipinnate, pinnae 20–28 pairs, alternate, linear to lanceolate, pinnae bearing separate pinnule, 3–4 cm long 6–12 mm broad, subsessile, sub rhomboid-oblong, 2–6 mm long, apex acute, long hair pointed tooth, basal lobe pinnule rounded with long hair teeth in large fronds. Pinnule longer and more lobed with acute apices. Sori infra marginal, undulate indusial, white when fully developed lie on flat above the sorus with edges extending noticeably beyond live flat plates, Peltate (Plate–1).



Figure 1: *Polystichum tangmaeinse* – A. Habitat at Mayodia Pass (Dibang Valley); B. Habit; C. Lower parts; D. Petiole; E. Venation; F. Sori

*Morphological similarities:* *Polystichum tangmaeinse* is an obvious member of Section *Metapolystichum* with fronds up to 60 cm long slightly similar to *P. annapurnicola* Fras.Jenk

(Thapa 2002) but with narrower stipes base scales and pinnules much less lobed with more rounded less acute and more contiguous lobes. It differs from other Indian species of the section, by having all its stipe-scales pale russet-brown and concolorous (rarely some of the basal-most ones very slightly and vaguely darker-based); those at the very base being somewhat narrowly lanceolate, and those above very narrow to fibrillose; the scale-margins bear obvious, slightly variable, but usually long teeth. The scales are noticeably wider than the mere fibrils of *P. discretum* (D.Don) J.Sm., though consistently narrower than in the *P. piceopaleaceum* Tagawa. This species is only known from type locality Tangmai in Tibet at an altitude 2000 m. During field work in Dryopteridaceae in Arunachal Pradesh 2010 species of *Polystichum* which look at first glance occurs on limestones walls was found to be distinctive.

*Ecology:* It occurs shady moist temperate forest in Mayudia pass to Hunli forest area, Lower Dibang valley at an altitude of 2450 m. It is accompanied by *Tectaria dubia*, *Dryopteris marginata* and unidentified species of *Cheilanthes*. *Selaginella* was dominant on the slopes. *P. tangmaeinse* is grows only one population with ca. 10 individuals was found. It should clearly be classified as Rare following the IUCN guidelines (IUCN 2008).

*Distribution:* Tibet: Tangmaie, Arunachal Pradesh, Manipur, Mizoram, Nagaland.

*Specimen examined:* India, Arunachal Pradesh, Mayodia Pass to Hunli, Lower Debang Valley District, 14-06-10 A. Benniamin. 22242 BSI (ARUN).

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