

**Research Article**

**TAXONOMIC OBSERVATIONS OF THE FAMILY TECTARIACEAE  
FROM DEHRADUN DISTRICT, UTTARAKHAND**

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**ABSTRACT**

This manuscript deals with the taxonomic observations of Tectariaceae represented by single genus and single species in the study area. Along with taxonomic studies information relating to habitat and distribution is also provided along with its micrographic illustrations of the species is also provided. This is the first detailed account of the family Tectariaceae from Garhwal Himalaya.

**Keywords:** Taxonomic studies, Tectariaceae, Micrographic illustrations Garhwal Himalaya

**INTRODUCTION:**

Tectariaceae is a family of Leptosporangiate ferns in the order Polypodiales. The buckler fern family comprises 10 genera and 173 species world-wide, of which *Tectaria* is by far the largest. In 1990, Karl U. Kramer and coauthors treated *Pleocnemia* and 7 of the currently recognized genera as a subfamily of Dryopteridaceae. In 2006, in a revision of fern classification, Tectariaceae was an accepted family. Tectariaceae commonly occurring worldwide but is most diverse in tropical regions. Most species are terrestrial or grow on rocks. It is characterized by the sori are round and often covered with a membranous protective flap of tissue called an indusium. The spores are bean-shaped (bilateral).

**FAMILY : TECTARIACEAE** Panigrahi in in J. Orrisa Bot. Soc 8 (1): 41. 1986.

A genus with 173 species in world; 24 species in India; 02 species from Uttarakhand; 1 species observed in the study area.

**TECTARIA** Cav. Anales Hist. Nat. 1(2): 115

Plants terrestrial. Rhizome erect or creeping, short, stout or slender, scaly at apex; scales brown, lanceolate, margins entire or ciliate, membranous. Stipe brown to black, scaly at base or sometimes throughout. Fronds monomorphic to dimorphic, simple or pinnate or pinnatifid, often triangular or pentagonal, pinnae and lobes usually entire, never serrate; all axes hairy with articulate multicellular hairs; veins variously anastomosing. Sori terminal on included free veins, dorsal on veins or, usually orbicular, sometimes elongate; indusiate or exindusiate; indusia if present orbicular-reniform, persistent or caducous. Spores ovoid or elliptic, perispore verrucose, rugose, or spinose.

***Tectaria coadunata*** (J. Sm.) C.Chr.in Contr. U.S. Natl. Herb., **26**: 331, 1931; B. K. Nayar & S. Kaur, Comp. Bedd., Handb. Ferns Brit. India, 52, 1974; R. D. Dixit, Census Indian Pterid., 142, 1984; P. C. Pande, Indian Fern J., **7**: 187, 1990; P.C. Pande & Bhandari, Inidan Fern J., **11**: 25, 1994; Subh.Chandra, Ferns of India, 222, 2000; R. D. Dixit & R.Kumar, Pterid. Uttaranchal- Checklist, 106, 2002; P C.Pande & H C.Pande, West. Hiaml., 131, 2002; Indian J. For., **25**(4); 495, 2002; H C. Pande & P C. Pande, Illust. Fern Fl. Kumaon., **1**: 282, 2003; **2**: 228, 2002; P. Joshi, H C. Pande & P C. Pande, Vegetos, **17**: 79, 2004; Indian J. For., **27**(4): 402, 2004; Fraser- Jenk., Taxon. Revis. Indian Subcontinental Pteridophytes 626. 2008; P. Joshi, H C. Pande & P C. Pande, Ferns Cent. Himalaya1:563. t.179. 2009.

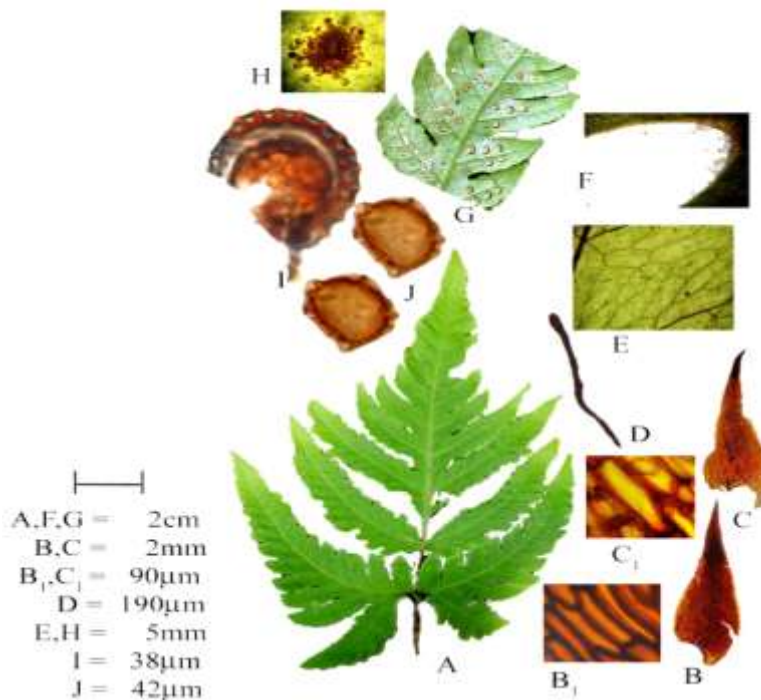
*Aspidium coadunatum* Wall. ex Hook. & Grev., Icon Filic., t.202, 1831.

*Sagenia coadunata* J. Smith, J. Bot (Hooker). Lond., **4**: 184, 1841.

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*Tectaria macrodonata* (Fée) C.Chr., Index Fil. Suppl., 3: 181, 1934. *nom. nov. superfl.*, Dhir, Biblioth. Pteridol., 1: 78, 1980; Dhir & Sood, Biblioth. Pteridol., 2: 53, 1981; Bir, Satija, S.M.Vasudeva & Goyal, Pterid. Fl. Garhwal. Himal., 51, 1983; R.D.Dixit, Census Indian Pterid., 144, 1984; Sur.Singh, Chaudhery & R.R.Rao, Indian J. For., 9(2): 164, 1986.

Rhizome short, creeping, horizontal, apex densely scaly; scales yellowish-brown, delicate, concolorous, ovate- acuminate, base cordate, short apex, margin with 2-4 celled glandular hairs. Fronds large, 0.5-1m long, pinnatifid. Stipe tufted, green when young, turns brownish at maturity, chestnut-brown, sparsely hairy, scaly base, upper glabrous; scales ovate, yellowish-brown, margin fibrillose or smooth, apex acuminate shortly. Lamina deltoid, bipinnatifid, 45-60cm x 25-35cm, delicate, leathery, shining green, both surfaces hairy; hair 2-5celled, uniseriate; pinnae 8-11 pairs, petiolated, lanceolate, base heart-shaped, basal pairs largest in size, acuminate, margin lobed, deeply dissected into 4-10 jugate lobe; lobes broad-rounded, oblique, ventral side densely pubescent, 11-25 pairs, apex rounded. Veins anastomosing, veins also hairy; 2-4 series of areolae, areolae containing veinlets, costa and costule distinct, veinlets ending into knob like endings. Sori large, round, in two rows between the main vein, on the reticulated veins or at the apex of free veinlets; indusium large, fugacious, round- reniform, margin undulating, smooth; sporangium 12-14 celled, annulus vertical. Spores yellowish-brown, perisporiate, 45-51.5µm x 35-46µm, perinate, perine with irregular margin. Figure 1



**Figure 1: *Tectaria coadunata* (J. Smith) C. Chr. A. Plant B. Rhizome scale B<sub>1</sub> Magnified part of scale C. Stipe scale C<sub>1</sub> Magnified part of Scale D. Hair E. Pinna showing venation F. Margin of pinna showing hair G. Fertile pinna H. Magnified part of sori I. Sporangia J. Spores**

*Specimens examined:* Mothranwala swamp, Dehradun, 484, 485 (BSD), 9.9.08, Chhaya Singh & H.C.Pande. Robber’s cave, Dehradun, 492 (BSD), 9.9.08, Chhaya Singh & H.C.Pande. Karwapani, Dehradun, 492 (BSD), 9.9.08. Birpur forest, Premnagar, 492 (BSD), 7.8.10, Chhaya Singh & H.C.Pande. Jhajhara, Dehradun, 644 (BSD), 7.8.10, Chhaya Singh & H.C.Pande.

*Earlier Record from the study area:* Robber’s cave, Dehradun, 51(BSD), Chhaya Singh & H.C.Pande.

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**Habitat:** Common, on edges of forests, shaded rocks along roadside, along streamlets, roadsides, in semi-exposed but moist sites, 1000-2500m.

**Distribution:** **INDIA** (Foothills of West and East Himalaya, East and South India); Uttarakkhand: (Dehradun, Bageshwar, Chamoli, Rudraprayag, Uttarkashi, Nanital); **WORLD:** ASIA (BHUTAN, CHINA, MALAYA, MALAY PENNINSULA, MYANMAR, NEPAL, SRI LANKA).

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