

THE GENUS *ADIANTUM* L. FROM MAHARASHTRA: A NOTE ON THE ADDITION OF TWO SPECIES FOR MAHARASHTRA, INDIA

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ABSTRACT

The genus *Adiantum* L. from Maharashtra is revised; seven species are recognized. *Adiantum concinnum* Willd. and *A. poiretii* Wikstr. are new records for Maharashtra, and are described and illustrated.

INTRODUCTION

The genus *Adiantum* is a large genus of some 280 species globally, with 20 species and two varieties reported for India. The Western Ghats of India has 10 species of *Adiantum*, of which five species have been reported previously from Maharashtra (Blatter and d'Almedia, 1922). The present investigation was undertaken to study the genus *Adiantum* from Western Ghats of Maharashtra. Seven species of *Adiantum* were found, with two species, *A. concinnum* Willd. and *A. poiretii* Wikstr., being recorded for the first time for Maharashtra State.

MATERIALS AND METHODS

Field visits were carried out from June 2010 to December 2012 for the collection of *Adiantum* species from Northern Western Ghats. The specimens are preserved in the Herbarium, Department of Botany, Shivaji University, Kolhapur (SUK) and were identified by using the floristic accounts of Beddome (1884), Blatter and d'Almedia (1922), Dixit (1984), Manickam and Irudayaraj (1992) and Fraser-Jenkins (2008).

RESULTS AND DISCUSSION

Taxonomic Treatment

Adiantum L. Sp. Pl., 1094 (1753); Copland, Gen. Fil. 78, 1947; Beddome, Ferns S. Ind., 1 (1970); Almedia, Cont. Stu. Vas. Pl. Mah. Rev. Pterido., 140, 1972; Manickam & Irudayaraj, S. Ind. Pterido., 95, 1994. Type - *Adiantum capillus-veneris*, United States, Holmlea.

Hewardia J. Sm., J. Bot. (Hooker) 3: 432. 1841.

Rhizome erect or creeping, densely or sparsely covered with scales; *scales* uniform or differential, multicellular, dark brown 1 - 3 mm long; *stipe* 5 - 15 cm long, dark brown, glabrous or hairy; *lamina* simply pinnate to tripinnate or quadripinnate (*A. raddianum* Presl.); *pinnule* herbaceous 2 - 3 cm long, dark green to pale green, usually dimidiate, glabrous or hairy (*A. caudatum* L.); *veins* free, dichotomously branched, reaching up to margin; *sori* marginal or borne in the notches, reniform to linear; *spores* trilete, and granulose.

Key to the species

- 1a. Fronds once pinnate 2
 1b. Frond pinnately branched, glabrous 4
 2a. Fronds rooting through apical buds 3
 2b. Frond is not rooting through apical buds; pinnae glabrous *A. incisum*
 3a. Pinnae densely hairy *A. caudatum*
 3b. Pinnae glabrous *A. philippense*
 4a. Rhizome erect, pinnules pale green *A. concinnum*
 4b. Rhizome creeping, pinnules dark green 5
 5a. Pinnules semicircular *A. poiretii*
 5b. Pinnules dimidiate or sub-dimidiate 6
 6a. Rhizome short creeping, lamina deltoid, tripinnate *A. raddianum*
 6b. Rhizome long creeping, lamina bipinnate *A. capillus-veneris*

Adiantum concinnum Willd., Sp., 5.451(1810); Mickel & Beitel, Pterid. Fl. Oaxaca, Mexico, 23, Figure 38 K.L. (1988); Beddome, Ferns S. Ind., 1 (1970); Almedia, Cont. Stu. Vas. Pl. Mah. Rev. Pterido., 140, 1972; Manickam & Irudayaraj, S. Ind. Pterido., 95, 1994. Type - Venezuela, Caracas, Cumana.

Adiantum lutescens Mougcot ex Fee, Mem. foug 5: 119 (1852).

Adiantum concinnum var. *subvolubile* Mett. Lehmann, mid, J, P40.

Rhizome erect or suberect, densely scaly at apical part; *scales* ± 5 mm long, 0.2 - 0.4 mm wide, lanceolate, apex acuminate, margin entire; *stipe* 15 - 28 cm long, smooth, glabrous, slender, tufted, scaly at base, dark brown, abaxially rounded, slightly grooved adaxially; *frond* 40 - 50 cm long, 15 - 25 cm broad, bipinnate to tripinnate, triangular or ovate, apex acute, base broadly cuneate; *pinnae* thin, herbaceous, Primary pinnae 8 - 12 pairs, alternate, short stalked, terminal pinnule similar to lateral, Secondary pinnae stalked, base oblique, pinnules 3 - 5 pairs per secondary pinnae, shortly stalked, fan shaped, ovate or wedge shaped, base truncate, margin deeply lobed into 2 - 3 primary lobes; *veins* dichotomously branched, springing from the base and freely reaching towards the margin; *pinnae* pale to dark green, glabrous, above and below, texture thin herbaceous; *sori* kidney shaped, 8 - 15 on each pinnules, exindusiate, papery; *spores* diam. 30 - 38 µm, tetrahedral, exine red-brown, granulose (Figure 1).

Distribution and Ecology: Rare along exposed road sides and road cuttings from Panhala Hill station between altitude 900 - 1000 m. The species is an escape from C. and S. America, and is now naturalised in South India and North East Himalaya.

Note: *A. concinnum* is reported here for the first time as a new record for Maharashtra State.

Adiantum poiretii Wikstr. Kongl. Vetensk. Acad. Handl. 1825. 443. 1826; Fraser-Jenkins, Tax. Rev. Three Hund. Ind. Subcont. Pterid. 577, 2008. Type - Tristan Da Cunha

Adiantum crenatum Baker., Syn. Fil. (Hooker & Baker) 120. 1867.

Adiantum gratum Fée., Mém. Foug., 5. Gen. Filic. 119. 1850-52; 7 mem. 29 t. 12 f. 3. 1850.

Adiantum poiretii var. *sulphureum* (Kaulf.) R.M. Tryon. *Amer. Fern J.* 47: 139. 1957.

Adiantum sulphureum Kaulf. Enum. Filic. 207. 1824

Adiantum sulphureum var. *subsulphureum* (J. Rémy ex Gay) Looser. *Physis* (Buenos Aires) 15: 225. 1939.

Rhizome creeping, ± 5 mm dia., scaly at base; *scales* 5 mm long 0.7 - 1 mm wide,

filiform, thin, hair like, yellowish brown, broadly triangular, margin entire, apex acuminate; *stipe* 8 - 15 cm long, lustrous, glabrous, red-brown, bearing conspicuous basal scales, similar to those of the rhizome; *frond* 20 - 25 cm long, 12 - 14 cm wide, thin herbaceous, deltoid, bipinnate or tripinnate, ovate, apex acute base cuneate; *pinnules* herbaceous, suborbicular, fan shaped, lobed half way to the base, base cuneate or rounded, non soral margin crenulate; *veins* dichotomously branched, forked three to five times, free reaching up to margin, springing from cuneate base; *sori* linear, exindusiate, marginal in between notches, 1 - 2 per lobe; *spores* dia. 34.6 - 53.6 μm , trilete, exine smooth (Figure 2).

Distribution and Ecology: Rare in Western Ghats of Maharashtra, found in Panchagani on wet rocks or wall near the roadside at an altitude of 1000 m. It is associated with

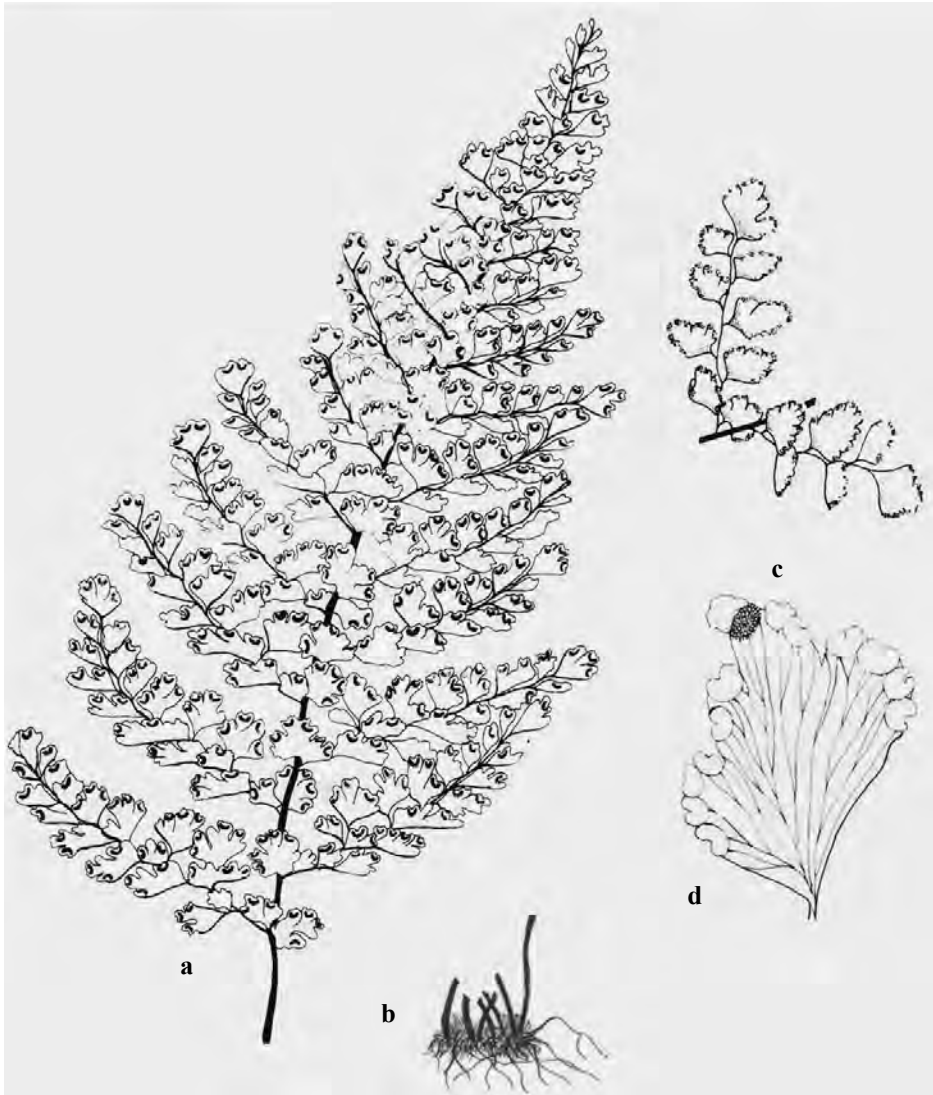


Figure 1: *Adiantum concinnum* Willd. **a:** Habitat **b:** Rhizome **c:** Enlarged pinna **d:** Pinnae showing sori and venation.

Cheilanthes rufa D. Don., *Microsorium membranaceum* (D. Don) Ching. and *Hypodematium crenatum* (Forsk.) Kuhn.

Note: This species is reported here for the first time from Maharashtra State.

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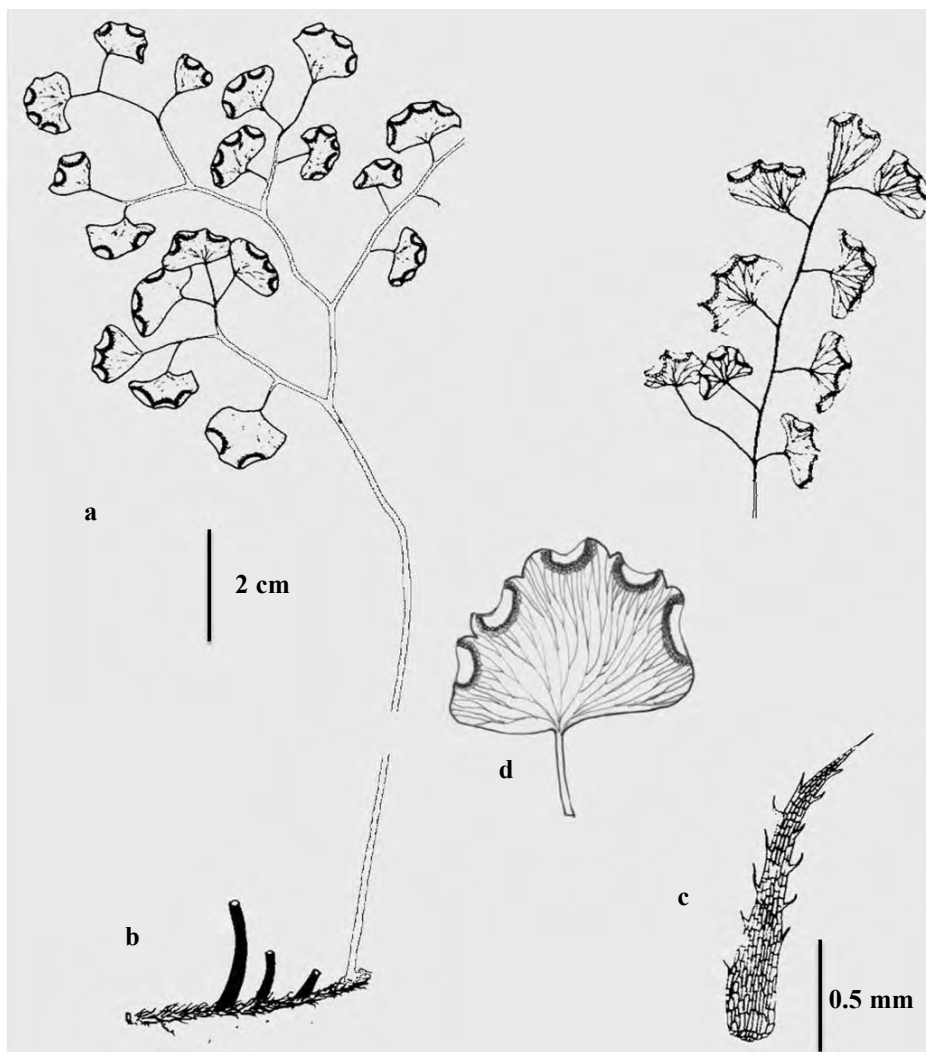


Figure 2: *Adiantum poiretii* Wikstr. **a:** Habitat **b:** Rhizome **c:** Rhizome scale **d:** Pinnae showing sori and venation.

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