

GENUS PTERIS L. FROM MAHARASHTRA

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ABSTRACT

The authors are engaged in the studies of Fern diversity from Maharashtra, especially Sahyadri. During their studies they come across eight species of genus *Pteris* L. Of the eight species, six species viz. *P. longifolia* (*P. vittata*), *P. pellucida*, *P. quadri aurita*, *P. quadri aurita* Forma-nemoralis (*P. linearis*), *P. quadri aurita* Forma-biaurita (*P. biaurita*), *P. quadri aurita* var. *setigera* Bedd. (*P. asperula*) were reported by Blatter and Almeida from Maharashtra, *P. biaurita*, *P. pellucida* and *P. vittata* were reported by Shaikh S. D. & Meena Dongare and *P. vittata* is reported by Bhuskute. Remaining two species *P. pseudo quadri aurita* and *P. subquinata* have remained unreported.

Key words : *Pteris*, Sahyadri, Fern, India.

Introduction

The fern genus *Pteris* L. is established by Linnaeus (1753) with type species *P. longifolia* L. (LT designated by J. Smith, Hist. Pl. 295, 1875) the genus *Pteris* L. represents about 51 species from India (Subhash Chandra, 2007), R. H. Beddome have reported 29 species from India (FSI-1863, FBI-1865, Handbook-1883).

The genus *Pteris* L. is characterized by free venation (except *P. biaurita* and *P. excelsa*), veins usually once forked, free, reaching the margin (except in *P. kleiniana* Christ). Costa and costules often bear spinules. Sori linear, all along the margin except the base and apex of the pinnae or pinnules. Sori covered by indusium, opening of indusium is towards midrib.

Herbarium specimens collected have been deposited in Vivekan and Arts, Sardar Dalipsingh Comm. & Sci. College, Aurangabad.

Key for the species of Genus *Pteris* L.

- 1a. Margin of leaflets entire.....2
- 1b. Margin of leaflets desected.....3
- 2a. Lower 2-4 pairs of leaflets progressively

- reduced*P. vittata*
- 2b. Lower pairs of leaflets not reduced*P. pellucida*
- 3a. Lowest pair of veins of adjacent lobes anastomosing to form an arch along the costa.....4
- 3b. Lowest pair of veins of adjacent lobes not anastomosing5
- 4a. Rhizome erect, margin of scales irregularly fimbriate.....*P. biaurita*
- 4b. Rhizome creeping, margin of scales entire.....*P. excelsa*
- 5a. Rachis consist of usually one rarely two pairs of lateral pinnae.....*P. subquinata*
- 5b. Rachis consists of more than three pairs of lateral pinnae.....6
- 6a. Small spinules present on costa only.....*P. linearis*
- 6b. Small spinules present on both costa and costules.....7
- 7a. Infertile apex of fertile lobes almost entire.....*P. Pseudo-Quadri aurita*
- 7b. Infertile apex of fertile lobes serrate.....*P. quadri aurita*

1) *Pteris biaurita* Linn., Sp. Pl. 2:1076, 1753;

Nayar & Kaur, Comp. Bedd., Handb. 31, 1974; Dixit, Census 69, 1984; Khullar, Fern, Fl. W. Himal. 1:260, 1984; Chandra S. Fl.34, 2000; Pardeshi, Man. Ferns of India 36, 2009. *Lithbrochia biaurita* (L.) J. Sm., Cat. Cult. Ferns 37, 1857. *Campteria biaurita* (L.) Bedd., FSI t. 44, 1863 & Handb. 116, 1883.

Erect herb, growing up to 4 feet high, Rhizome erect, scaly at apex, scales bicolorous, lanceolate, 3-4 x 0.50 mm margin irregularly fimbriate with a few long projections, Fronds unipinnate, ending with terminal leaflet, stipes faint brown, 30-60cm long, adaxially grooved, abaxially rounded, glabrous, rachis faint brown, 30-50 cm long, adaxially grooved, abaxially rounded, glabrous, leaflets subopposite to alternate, 8-10 pairs, ascending, basal pair forked, lanceolate, 16-18 x 3-3.5cm, shortly stalked, margin lobed near to costa, apex acuminate, lobes 20-22 pairs, ascending, larger lobe 1.8-2 x 0.3-0.5cm, margin entire, apex rounded, light green, glabrous on both the surfaces, venation pinnate, veins simple and once forked, except the basispic basal veins from each costule anastomosing with acroscopic basal veins of the next costule to form a more or less curved continuous arch along the costa, many veins arise from the arch and go towards the base of the sinus, reaching to margin, small spinules on the upper surface at the junctions of midrib and costa, Sori linear, superficial, continuous from the base of sinus and reaching almost the apex with a very little infertile apex left, indusiate, indusia light brown, linear, continuous, entire on margin, opening towards costa. (Fig. 1)

Maturity period- Oct. – Dec.

RSN- Gaganbawda - 6335, 6336, Amba - 6308, Panhala - 6123, Dodamarg - 6148, Nangartaswadi - 6398, Koyna Nagar - 6443, Chukul - 6421, Malwada - 6420.

2) *Pteris excelsa* Gaud., Freyc. Voy. Bot. 388, 1827; Bedd., FBI t. 218, 1866 7 Handb. 14, 1883; Nayar & Kaur, Comp. Bedd., Handb. 30, 1974; Dixit, Census 70, 1984; Khullar, Fern, Fl. W. Himal. 1:267, 1994; Chandra S. Fl.36, 2000; Pardeshi, Man. Ferns of India 33, 2009. *Pteris longipinnula* sensu Bedd, FSI t. 43, 1863.

Erect herb, growing up to 6 feet high, Rhizome short creeping, scaly at apex, scales faint brown, lanceolate, 3-4 x 1-1.5 mm, margin entire, apex acuminate, Fronds unipinnate, ending with terminal leaflet, stipes light brown to dark brown, 40-60 cm long, grooved adaxially, abaxially rounded, glabrous, rachis light brown, 50-100 cm long, grooved adaxially, abaxially rounded, glabrous, leaflets subopposite to alternate, 5-9 pairs, ascending, lower 1-2 pairs forked, lanceolate, larger pinna 20-30 x 5-7cm, shortly stalked below, subsessile to sessile above, margin deeply lobed near to costa, apex acuminate, lobes 30-32 pairs, ascending, basispic lobes slightly larger than acroscopic ones, larger lobe 5-6 x 0.5-0.7cm, margin entire, apex rounded, serrate on margin, dark green, glabrous on both the surfaces, Venation pinnate, veins simple and once forked, reaching to margin, except lower one to two pairs anastomosing, small spinules on upper surface at the junction of midrib and costa, Sori linear, superficial, marginal, continuous from the base of sinus to apex of lobe, some part of apex remains sterile, indusiate, indusia light brown, linear, entire on margin, opening towards costa. (Fig. 2)

Maturity period- September to January

RSN- Anuskura-6324, Koyna Nagar-6390.

3) *Pteris linearis* Poir. in Lamk. Enc. 5:723, pl. 43, 1804; Tard. & Chr. in Fl. Gen. I-C, 7(2):158, 1940; Tagwa & Iwatsuki, South-east As. St. 5:80, 1967; Dixit, Census, Ind. Pterid. 70, 1984. *Pteris normalis* D. Don, Prod. Fl. Nepal 15, 1825.

Erect herb, growing up to 85 cm high, Rhizome erect, scales faint brown or bicolorous, linear lanceolate, up to 8 x 1mm, margin fimbriate, apex acuminate, Fronds unipinnate, ending with terminal leaflet, stipes dark brown below, faint brown above, 20-25 cm long, grooved adaxially, abaxially rounded, glabrous above, scaly at very base, scales as on rhizome, rachis faint brown, 50-60cm long, grooved adaxially, abaxially rounded, glabrous, leaflets opposite to subopposite, 10-15 pairs, ascending, basal pair forked, oblong-lanceolate, larger pinna 20-25 x 3-4cm, margin deeply lobed 2-3mm to costa, apex acuminate,

5-6 cm long, lobes 25-35 pairs, ascending, oblong, 2-2.5 x 0.5-0.7cm, margin entire, apex rounded, dark green, glabrous on both the surfaces, venation pinnate, veins simple and once forked, reaching to margin, basal veins reaching to sinus base but never fusing, small spinules borne at the junction of costa and costules on upper surface, Sori linear, superficial, marginal, continuous from the base of sinus to the apex of lobe, apex of lobe remains sterile, indusiate, indusia light brown, linear, continuous, entire on margin, opening towards costa. (Fig. 3)

Maturity period- Nov.- Jan.

RSN- Koyna Nagar-6383, Vishalgad-6315, Phonda Ghat-6126, Tilari Nagar-6430, Ambade-Ajra-6396.

4) *Pteris pellucida* Pr., Rel. Haenk. 1:55, 1825; Bedd., FSI t. 38, 1863 & Handb. 106, 1883; pro-parte; Blatter & d' Almeida, Ferns of Bombay, 86, 1922; Nayar & Kaur, Comp. Bedd., Handb.29, 1974; Dixit, Census 71, 1984; Manickam & Irudayaraj, Pterid. Fl. West. Ghats, 69, 1992; Chandra S., Fl 41, 2000; Pardeshi, Man. Ferns of India 34, 2009.

Erect herb, growing up to 80cm high, Rhizome erect 2-3 cm thick, densely scaly at apex, scales dark brown at center, light brown at periphery, lanceolate 3-3.5 x 0.5 mm, margin fimbriate, projection with gland at tip, apex acuminate, gland at tip, Fronds unipinnate, ending with terminal leaflet, stipes light brown, 40-45 cm long, grooved adaxially, abaxially rounded, glabrous, rachis light brown, 30-35cm long, grooved adaxially, abaxially rounded, glabrous, leaflets 3-4 pairs, subopposite to alternate, basal pair petiolate, subsessile to sessile above, petiole up to 1 cm, elliptic or lanceolate, larger leaflets 20-25 x 3-3.5cm, margin entire with up to 0.25mm wide, light brown or yellowish brown, translucent, membranaceous border, apex acute, dark green, glabrous on both the surfaces, Venation free, veins simple and once forked, reaching to margin, Sori linear, marginal, except at the apex and base, indusiate; indusia dark brown, entire, glabrous, opening towards midrib. (Fig. 4)

Maturity period- September to January

RSN- Vishalgad-6319, Dodamarg-6149,

Khubi-Malshej Ghat-6241, Nangartaswadi-6415, Matheran-6473.

Note - According to a reliable reference of websites "The Plant List" and "Tropicos", the accepted name for this species is *Pteris camerooniana* Kuhn. Since there is no mention of basionym and in absence of reason for change, the earlier name has been followed here.

5) *Pteris pseudo-quadriaurita* Khullar, Khullar, An. Ill. Fern Fl. West Himal., 272, 1994. (Unresolved) Erect herb, growing up to 3 feet high, Rhizome erect, scaly, scales dark brown, linear lanceolate, 3-4 x 1-1.2 mm, margin irregularly dentate, apex acute, Fronds unipinnate, ending with terminal leaflet, stipes light brown, 20-40cm long, grooved adaxially, abaxially rounded, glabrous, rachis grey-green, 20-40cm long, grooved adaxially, abaxially rounded, glabrous, leaflets subopposite to alternate, 5-8 pairs, lower pair forked, shortly stalked below, subsessile to sessile above, lanceolate, larger pinna 10-15 x 2.5-4cm, margin deeply lobed near to costa, apex acuminate, lobes 30-32 pairs, ascending, 2.5-3 x 0.5-0.8cm, margin entire, apex rounded, dark green, glabrous on both the surfaces, Venation pinnate, veins simple and once forked, reaching to margin, lower pair of veins reaching to the base of sinus but never fusing, small setae on midrib, costa and costules on upper surface, Sori linear, superficial, marginal, continuous from the base of sinus to apex of lobe, some part of apex remains sterile, indusiate, indusia light brown, linear, entire on margin, opening towards costa. (Fig. 5)

Maturity period- September to January

RSN- Nile-Warna Nagar-6295, Phonda Ghat-6446, Vishalgad-6447, Malwada-6445.

6) *Pteris quadriaurita* Retz., Obs. Bot. 6:38, 1791; Bedd., FSI t. 31, 1863 & Handb. 110, 1883; Blatter & d' Almeida, Ferns of Bombay, 88, 1922; Nayar & Kaur, Comp. Bedd., Handb. 29, 1974; Dixit, Census 71, 1984; Chandra S., Fl 43, 2000; Pardeshi, Man. Ferns of India 34, 2009.

Erect herb, growing up to 70cm high, Rhizome erect, scaly at apex, scales faint

brown, linear lanceolate, 3-4 x 0.5 mm margin hairy, apex acuminate, Fronds unipinnate, ending with terminal leaflet, stipes light brown, 30-32 cm long, grooved adaxially, abaxially rounded, glabrous, rachis light brown, 30-35cm long, adaxially grooved abaxially rounded, glabrous, leaflets opposite to subopposite, 7-14 pairs, ascending, basal pair forked, lanceolate, 12-15 x 2.5 3cm, shortly stalked, margin deeply lobed near to costa, apex acuminate, lobes 30-45 pairs, 1.5-2 x 0.2-0.4cm, margin entire, apex rounded, dark green to pale green, glabrous on both the surfaces, Venation pinnate, veins simple and once forked, 12-15 pairs in each lobe, reaching to margin, up to 1mm spinules borne at the junction of midrib & costa and costa & costules, Sori linear, superficial, marginal, covered half part of the lobe, indusiate, indusia light brown, linear, entire on margin, opening towards costa. (Fig. 6)

Maturity period- September to January
RSN- Karanjale-6242, Malwada-6417, Phonda Ghat-6112, Bhimashankar-6189, Koyna Nagar-6448, Amba-6307, Mahabaleshwar-6367, Gaganbawda-6331, Vishalgad-6316.

7) *Pteris subquinata* Wall. ex Agardh, Recens. Spec. Gen. Pterid 21, 1839; Wall., Numer. List. No. 104, 1824 nom. nud.; Hope, J. Bombay Nat. Hist. Soc. 13:433, 1901; Khullar, An Ill. Fern Fl. West Himal., 277, 1994. *Pteris quadriaurita* var. *subquinata* (Wall. ex Agardh) Bedd. Suppl. Handb. FBI 23, 1892. (Unresolved) Erect herb, growing up to 35cm high, Rhizome erect, scaly at apex, scales faint brown, linear lanceolate, 3-4 x 0.5 mm, entire on margin, apex acuminate, Fronds unipinnate, ending with terminal leaflet, stipes stramineous or yellowish green, 20-25cm long, grooved adaxially, abaxially rounded, glabrous, rachis stramineous, 8-10cm long, grooved adaxially, abaxially rounded, glabrous, leaflets opposite, 2-4 pairs, lower pair forked, lanceolate, 7-10 x 2-3cm, shortly stalked below, sessile above, margin deeply lobed 2-4mm to costa, apex acuminate, lobes 15-20 pairs, 1-1.5 x 0.4-0.6cm, margin entire, apex rounded, dark green, glabrous on both the surfaces, Venation pinnate, veins simple and once forked, 10-15 pairs in each lobe, reaching to margin, spinules on the junction of midrib

and costa on upper surface, Sori linear, superficial, marginal, continuous from sinus to apex of lobe, apex of lobe remains sterile, indusiate, indusia pale brown, linear, entire on margin, opening towards costa. (Fig. 7)

Maturity period- September to January
RSN- Malwada - 6418, Vishalgad - 6314, Mangeli Ghat-6438.

Note- As per footnote by Beddome in Supplement to Ferns of British India & Ceylone Livingess's specimens are more slender. Wallich's type more papyraceous in texture and furnish with a broad white band down the center of each pinna. Our specimen do not agree with upper cited statement.

8) *Pteris vittata* Linn. Sp. Pl. 2:1053; Blatter & d' Almeida, Ferns of Bombay, 83, 1922; Nayar & Kaur, Comp. Bedd. Handb. 29, 1974; Dixit, census 73, 1984; Chandra S., Fl 46, 2000; Pardeshi, Man. Ferns of India 34, 2009. *Pteris longifolia* Linn. In Bedd., FSI t.33, 1863 & Handb. t. 106, 1883. *Pteris vittata* (L.) C. Chr. Index Fil. 609, 1906.

Erect herb growing 20-22 inch high; Rhizome brownish, erect, cylindrical; scales golden, linear lanceolate, 5-7 x 6-8 mm, entire, acuminate; Fronds unipinnate, ending with entire leaflet; stipes faint brown, grooved on adaxial side, 8-12cm long; scales golden, linear lanceolate, 4-5 x 5-6 mm, entire, acuminate; rachis faint brown, grooved on adaxial side, 50-55cm long, hairy; Leaflets alternate, sub sessile, auricled to one side, linear lanceolate, 12-13.5x1-1.5cm, lower leaflets gradually smaller, margin denticulate, apex acuminate, light green, glabrous on both the surfaces; venation free, veins simple irregularly alternate with once forked, reaching to margin; Sori linear continuous on both the margin superficial, indusiate; Indusia linear continuous, entire opening towards midrib. (Fig. 8)

Maturity period- September- January
RSN- Bhimashankar-6228, Bhandardara-6259, Igatpuri-6273, Gangapur-Bhimashankar - 6237, Male-6179, Sawantwadi - 6102, Dodamarg - 6143, Phonda Ghat-6108, Pune-6184, Chiplun Ghat - 6360, Kolhapur - 6389, Tawandi Ghat-6393, Hiranyakeshi - 6411, Aurangabad - 6490.

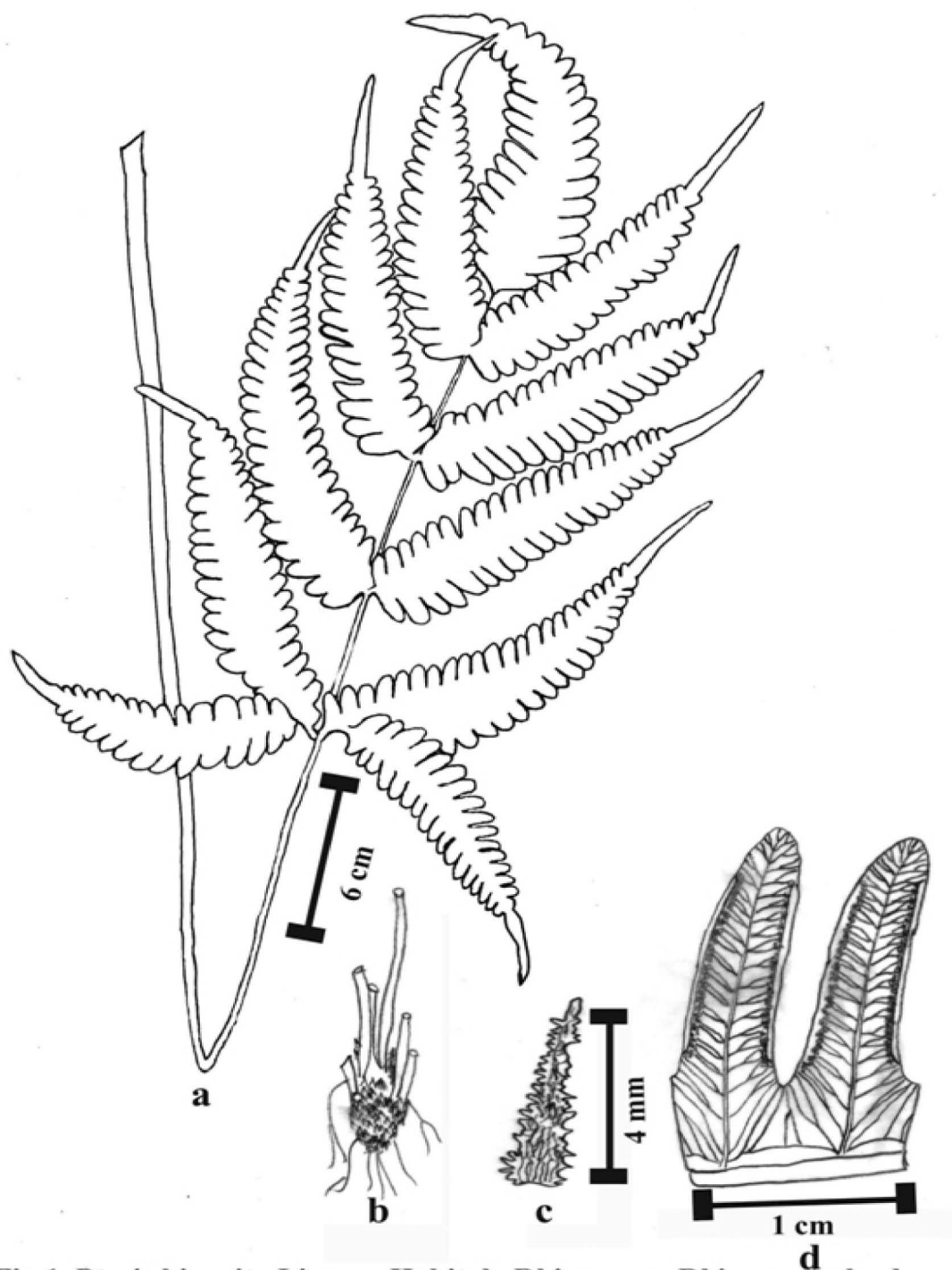


Fig 1. *Pteris biaurita* Linn. a. Habit, b. Rhizome, c. Rhizome scale, d. Enlarged leaf segment showing venation and sori

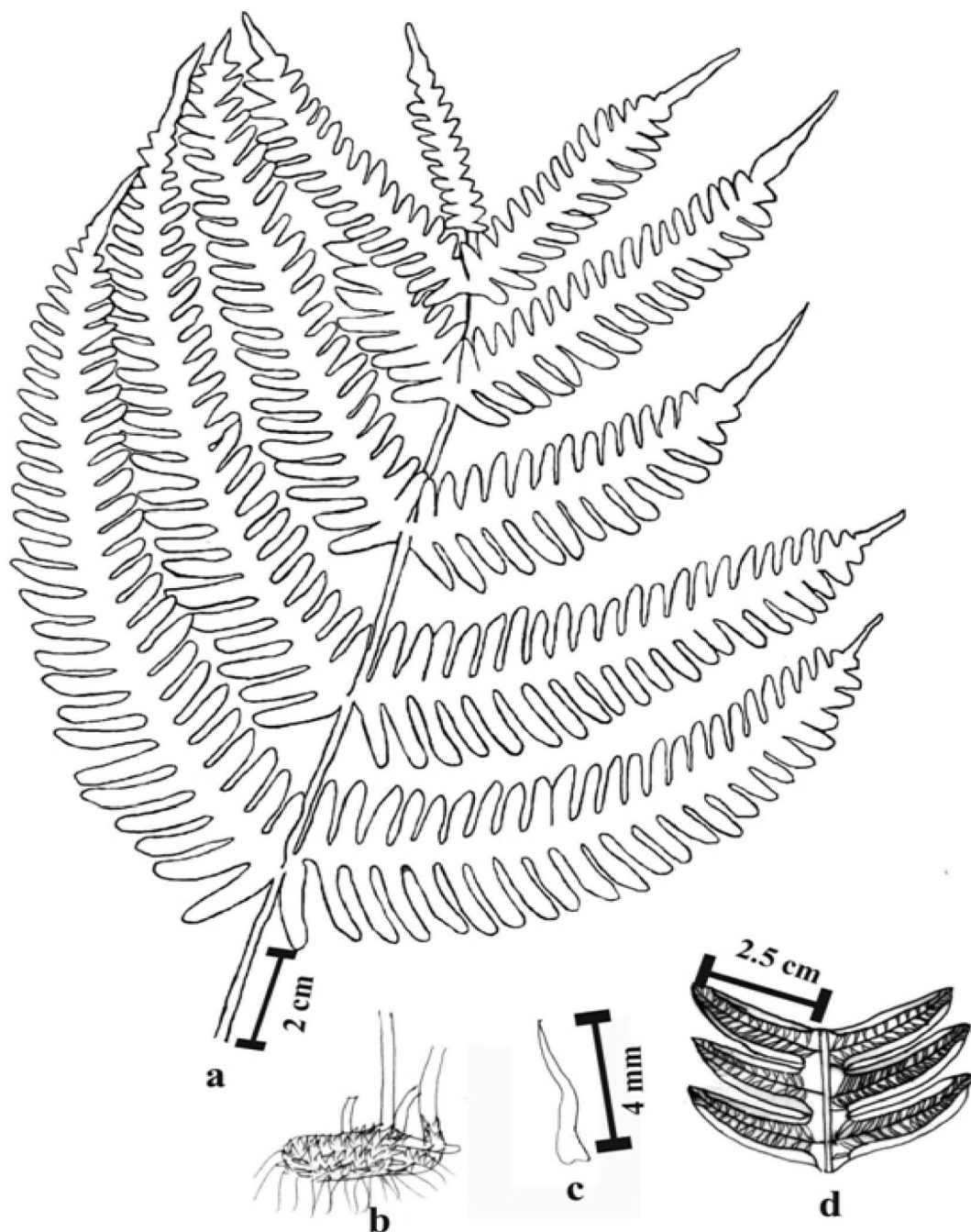


Fig. 2 *Pteris excelsa* Gaud. **a.** Habit, **b.** Rhizome, **c.** Rhizome scale, **d.** Enlarged leaf segment showing venation and sori.

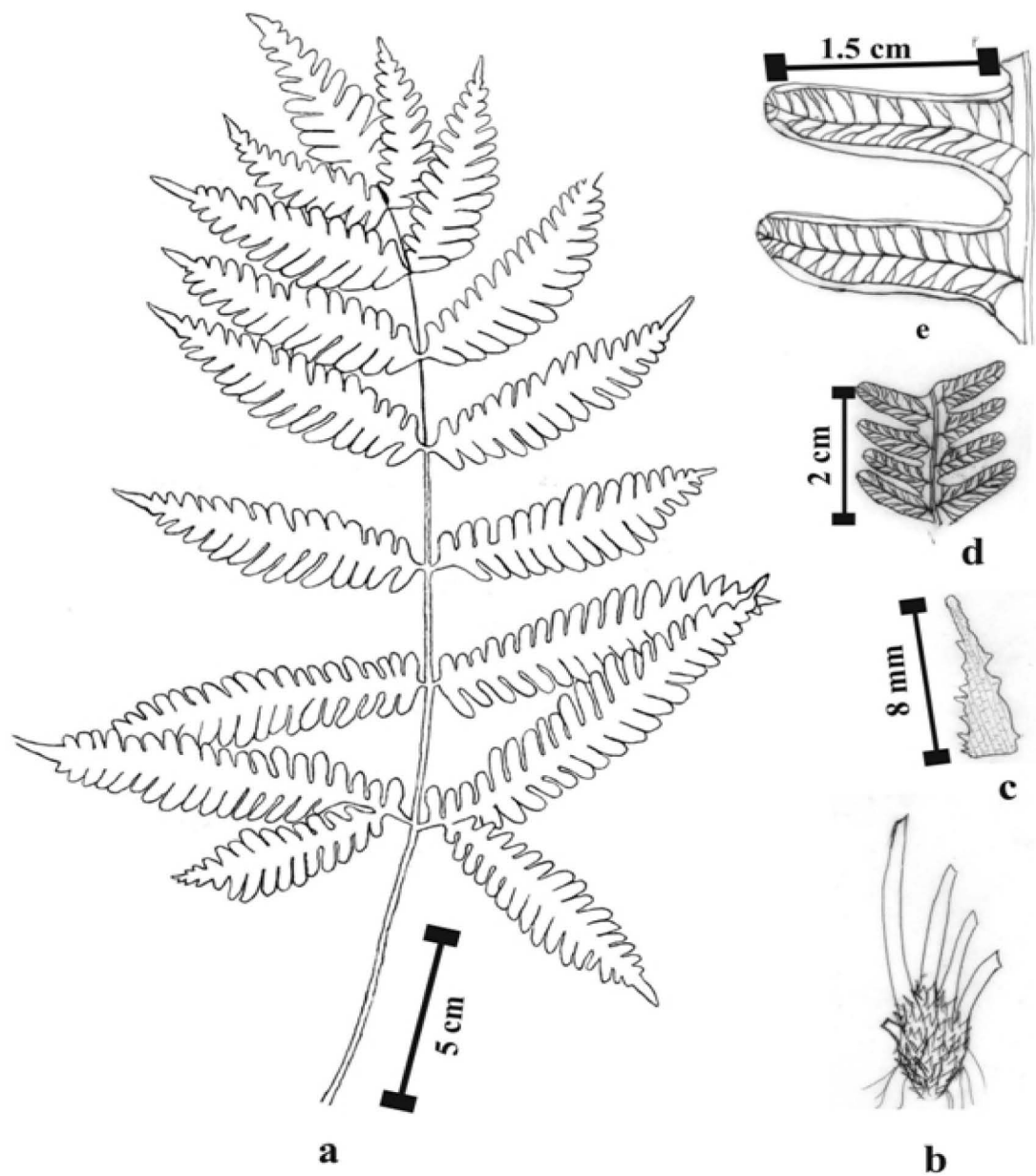


Fig. 3 *Pteris linearis* Poir. a. Habit, b. Rhizome, c. Rhizome scale, d. Enlarged leaf segment showing venation, e. Enlarged leaf segment showing venation and sori.

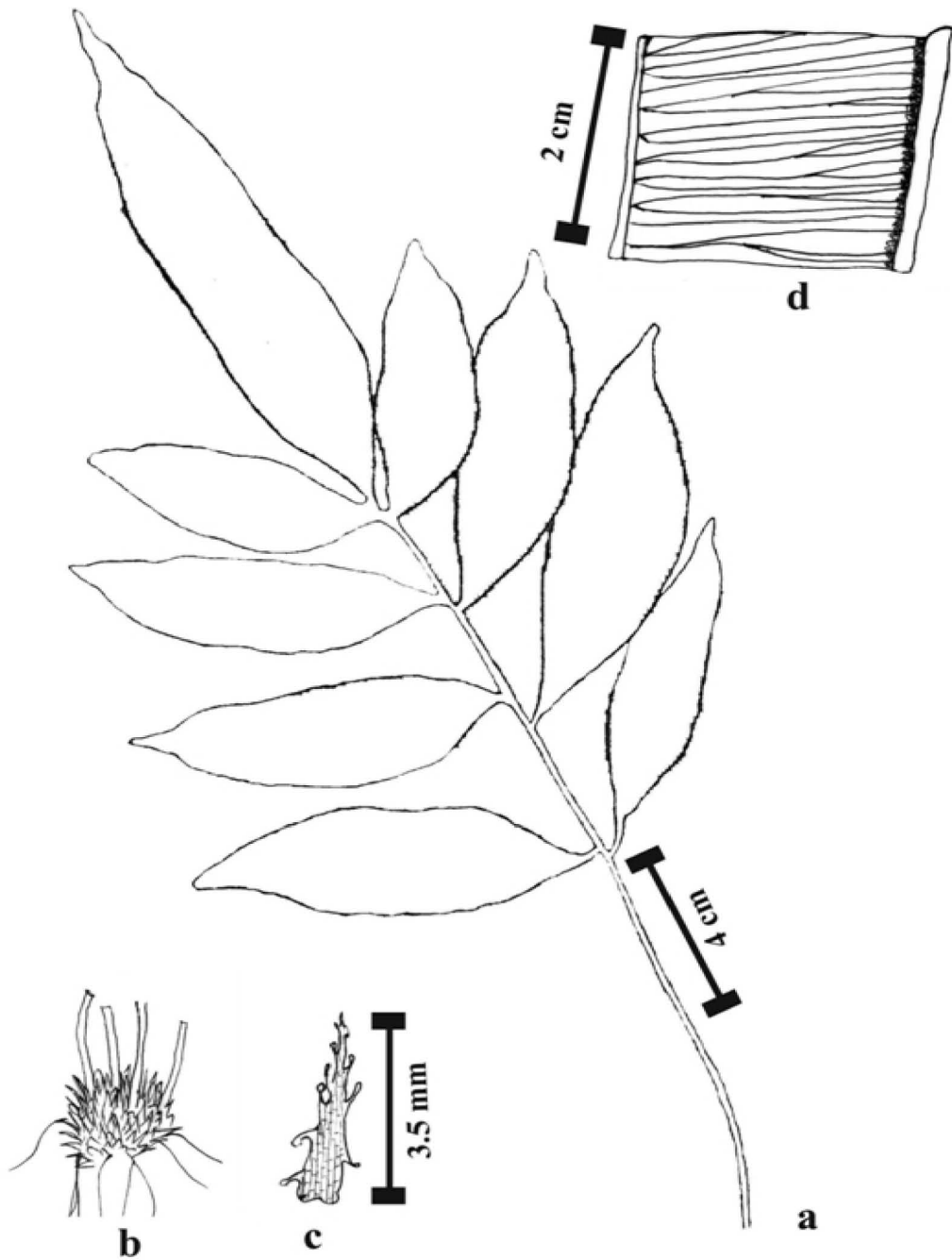


Fig. 4 *Pteris pellucida* Pr. a. Habit, b. Rhizome, c. Rhizome scale, d. Enlarged leaf segment showing venation and sori.

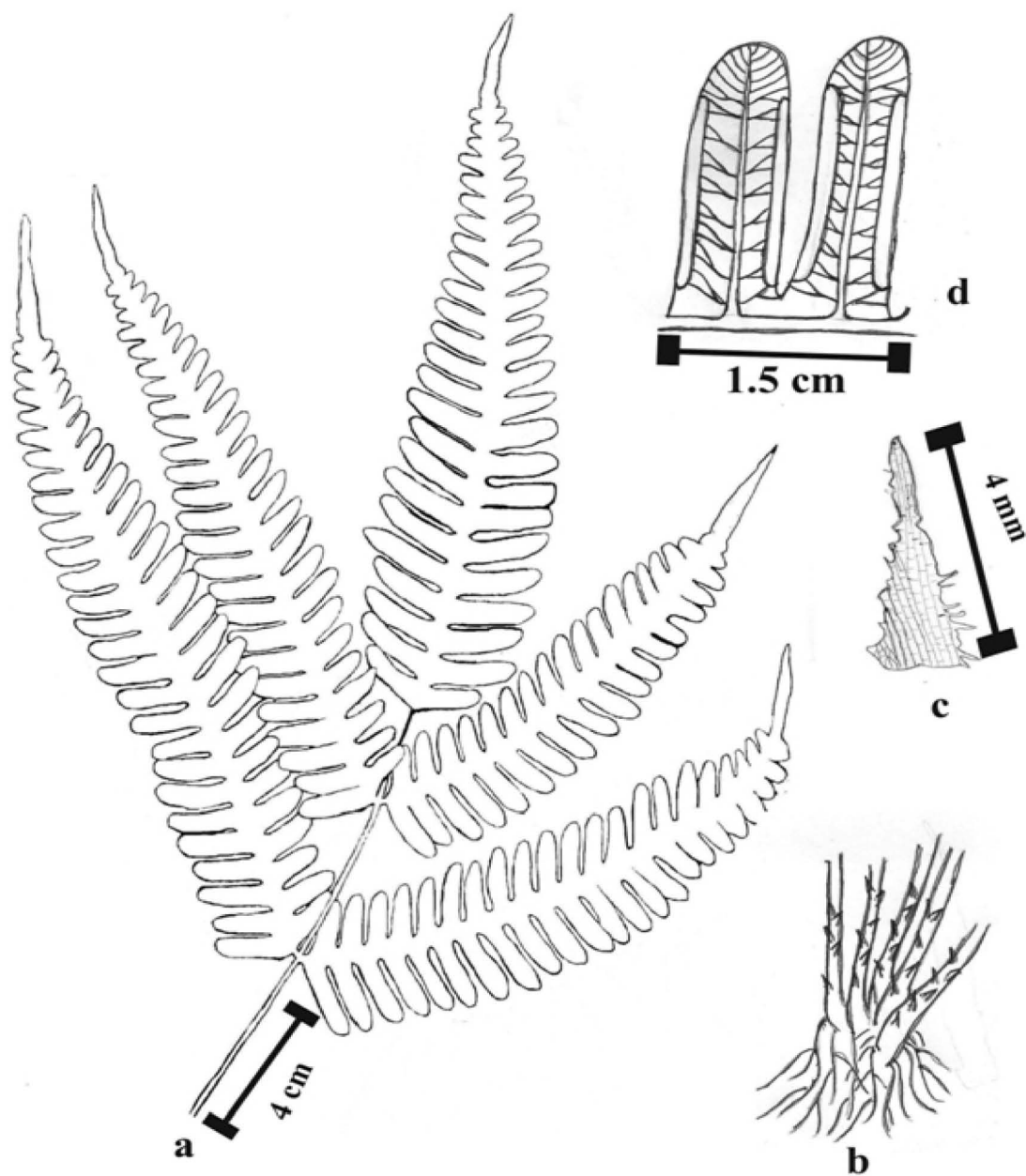


Fig. 5 *Pteris pseudo-quadriaurita* Khullar, a. Habit, b. Rhizome, c. Rhizome scale, d. Enlarged leaf segment showing venation and sori.

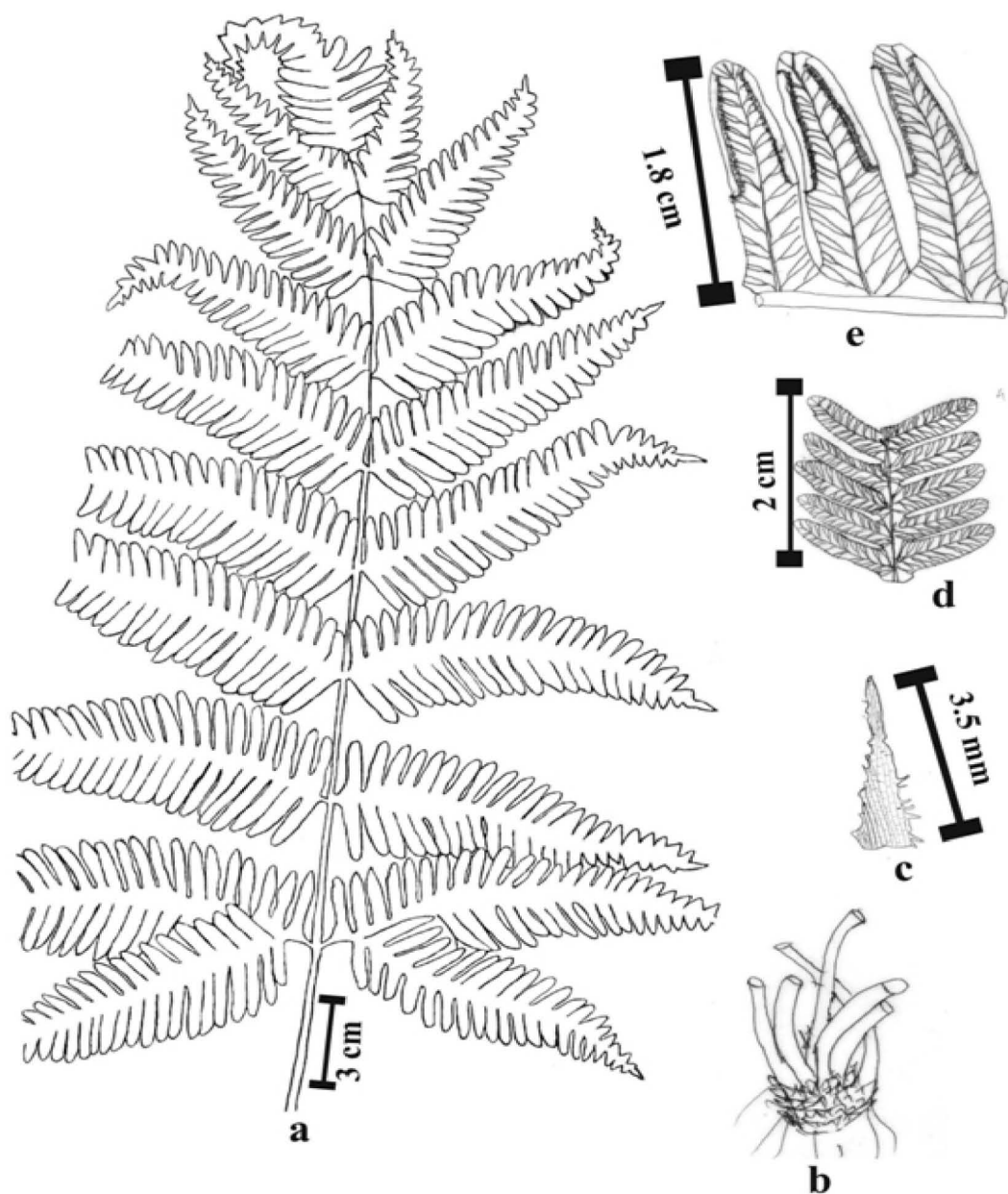


Fig. 6 *Pteris quadriaurita* Retz, a. Habit, b. Rhizome, c. Rhizome scale, d. Enlarged leaf segment showing venation, e. Enlarged leaf segment showing venation and sori.

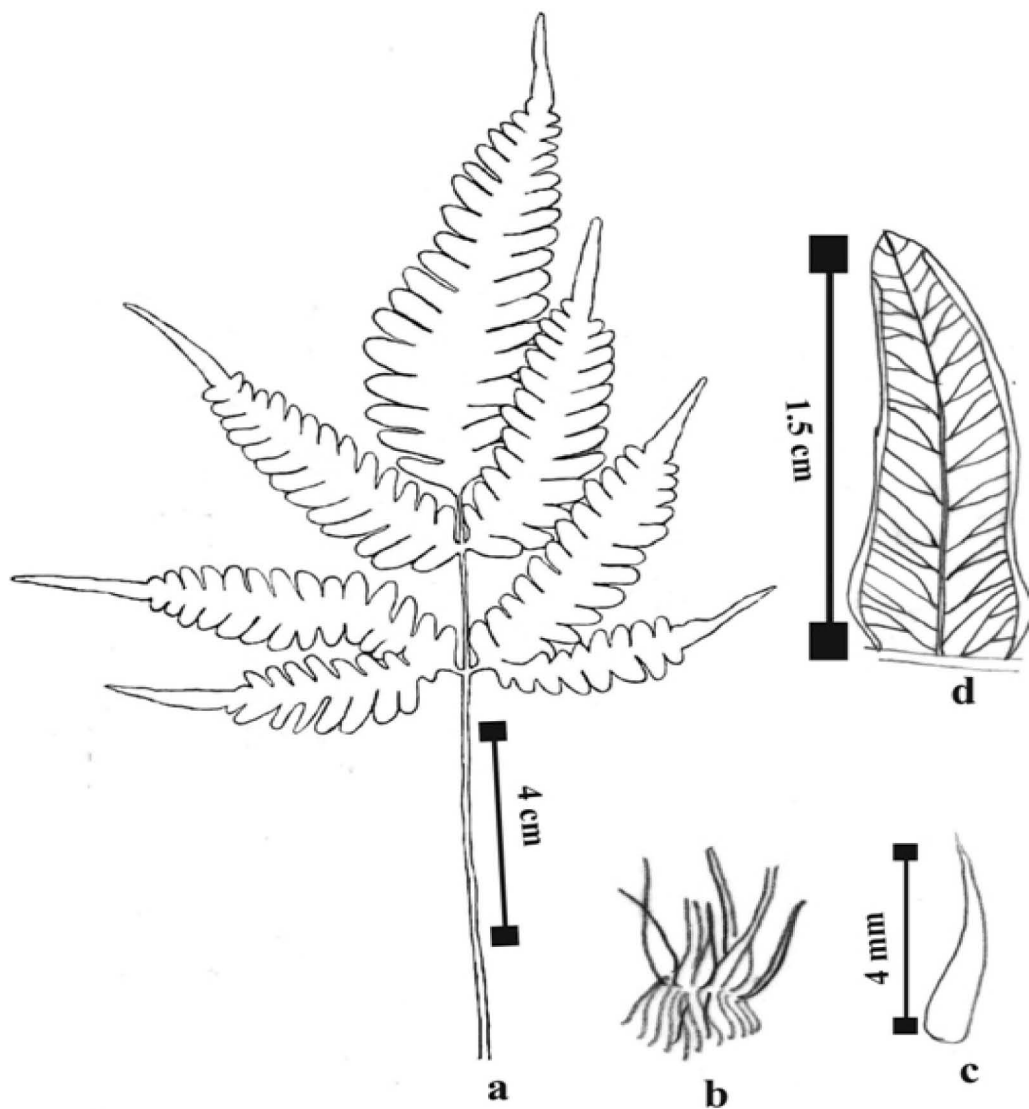


Fig. 7 *Pteris subquinata* Wall. ex Agardh, a. Habit, b. Rhizome, c. Rhizome scale, d. Enlarged leaf segment showing venation and sori.

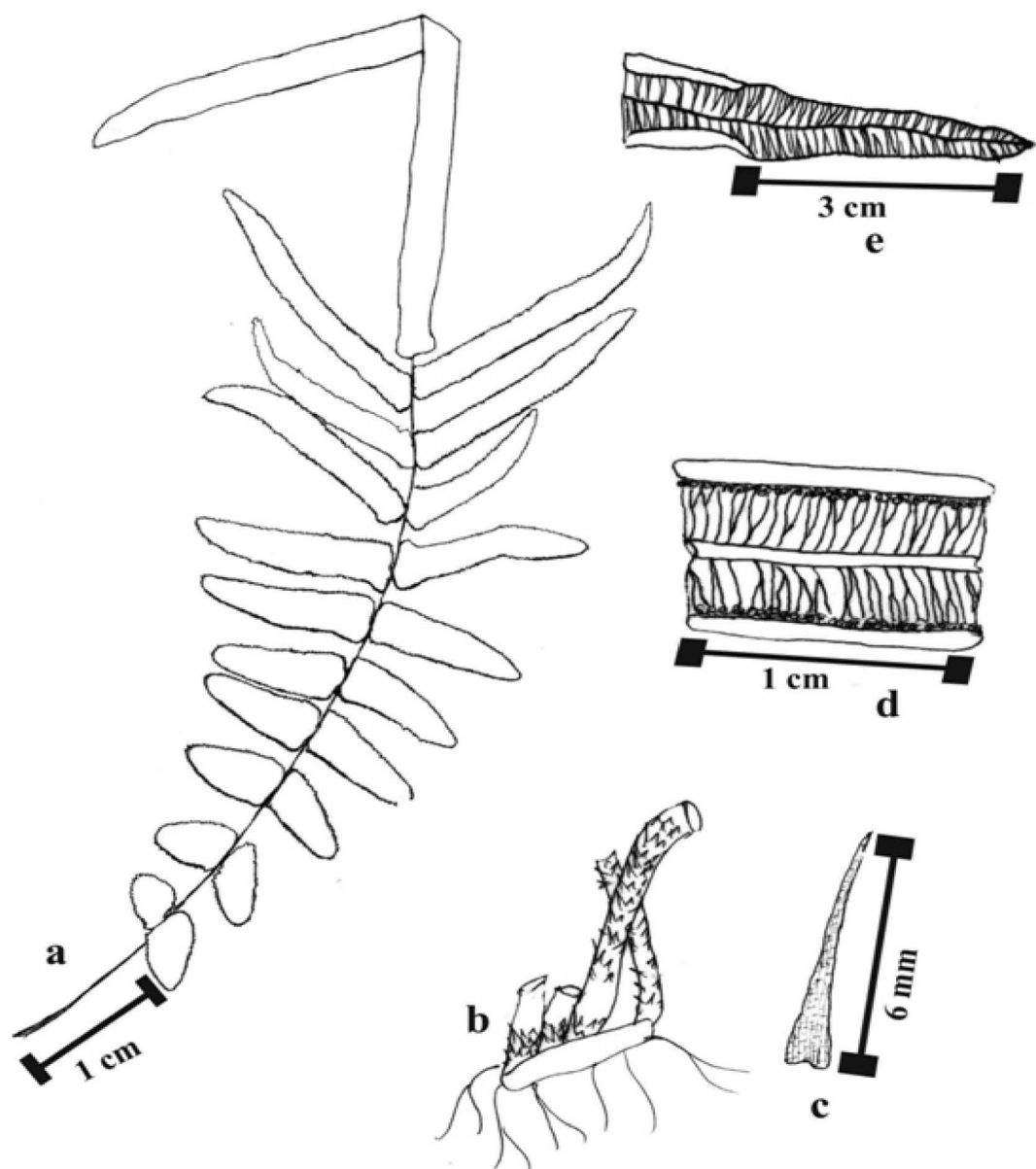


Fig. 8 *Pteris vittata* Linn. a. Habit, b. Rhizome, c. Rhizome scale, d. Enlarged leaf segment showing venation and sori, e. Enlarged part of leaf apex.

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