

Occurrence of *Pteris austrosinica* (Ching) Ching [Pterideaceae] in Darjiling Hills: a new record of endemic Chinese element in Indian Sub-continent.

Nayan Thapa¹ and Dorjay Lama²

Department of Botany, St Joseph College, Darjiling- 734104, West Bengal, India

¹Corresponding author: E-mail: nayanthapa16@yahoo.com

Abstract: Recent collection of *Pteris austrosinica* (Ching) Ching [Pterideaceae] from the tropical habitat of Singla (343 m ± 10) in Darjiling hills is a new record of its occurrence in Indian subcontinent. The plant is a Chinese element, being stated as endemic to Guangdong, Guangxi, Jiangxi in China and its discovery in Darjiling hills has widened its geographical distribution. It assumes significance as this species has been included in the threatened Pteridophytes in Asia.

[Nayan Thapa and Dorjay Lama. Occurrence of *Pteris austrosinica* (Ching) Ching [Pterideaceae] in Darjiling Hills: a new record of endemic Chinese element in Indian Sub-continent. *Researcher* 2015;7(5):36-38]. (ISSN: 1553-9865). <http://www.sciencepub.net/researcher>. 7

Key words: *Pteris austrosinica*, Endemic, New record, Darjiling Hills, Indian subcontinent.

Introduction

Pteris L. has a global distribution of Ca. 250-300 species (<http://www.efloras.org>), is represented in India by 50 spp and 7 sub species (Fraser-Jenkins, 2008). Darjiling and Sikkim Himalaya, a segment of eastern Himalaya in the Indian subcontinent rich in genus *Pteris* L. with occurrence of 22 sp and 5 sub sp. The District of Darjiling, West Bengal lies between 26°31' and 27° 13' N latitude and between 87°59' and 88°53' E longitude (O'Malley 1907). The Hills of Darjiling with an area of 2436.55 km² with altitudinal variation ranging from 150 m (Sukna) to 3660 m (Sandakphu - Phalut), presents diverse topographical condition and offer suitable habitat for the occurrence of wide range of plants (Das 1995, 2004; Acharya & Acharya 2001). Floristically well explored but the occurrence of micro-niche in a difficult terrain with negligible accessibility has lead some plants of the region to be undiscovered. Recently *Pteris roseoililacina* Hieron., a Chinese element was reported from Majuwa, a forest village in the fringes of Singallila National park, Darjiling (Fraser-Jenkins, 2008).

Materials and Method

Regular field trips were made during April 2012 to July 2014 for enumeration, documentation and studies of Fern and fern allies in various forest tracts of Darjiling hills and processed into mounted herbarium-sheets following conventional techniques (Jain & Rao, 1977). Specimen were identified by matching with the pre-identified specimens in the Herbarium of the Llyod's Botanical Garden, Darjiling as well as through consultation of published literature including Mehra & Bir (1964); Hara (1966); Mathew (1971); Chowdhury (1973); Ghosh *et al* (2004) and

Fraser-jenkins (2008). As the plant couldn't be identified, further literature survey was carried out utilizing the www.efloras.org, Ching (1978) and Ching and wu (1990).

Result and Discussion

The plant was identified as *Pteris austrosinica* Ching [Pterideaceae]. Voucher specimens have been deposited in the Herbarium of Llyod's Botanical Garden and at the Herbarium of the Botany department, St. Joseph College, Darjiling. However, available literature shows the distribution of the species, being endemic and threatened species of China (Ebihara, 2012) Thus the present collection of the species from Darjiling Hills forms the new record for the region and the Indian subcontinent. A brief description of the species a long with sketches is provided here for its easy identification.

***Pteris austrosinica* (Ching) ching**, Acta Phytotax. Sin. 10: 302. 1965.

Pteris wallichiana J. Agardh var. *austrosinica* Ching, Bull. Dept. Biol. Sun Yatsen Univ. 6. 27. 1933.

Plant terrestrial, erect, ca. 2 m tall, Rhizome erect, short, thick, ca. 2.5 cm in diameter. Stem woody, apex with brown scales. Fronds clustered, stipe castaneous, up to 1.5 m, ca. 2 cm in diameter, glabrous, broadly grooved adaxially. Rachis chestnut, narrowly grooved adaxially. Lamina usually 3-pinnatipartite, pentagonal-broadly ovate in outline, 90-120 × 90 cm, central division a long ovate column, 75-85 cm, middle ones 25 cm wide, stalked (8-10 cm), lateral branches smaller, usually again divided; lateral pinnules 14-20 pairs, alternate, decumbent, sessile or slightly shortly stalked, basal several pairs slightly shorter, ca. 1.5 cm apart, middle pinnules lanceolate,

15-20 × 3-4 cm, base broadly cuneate, nearly symmetrical, deeply pectinately divided leaving broadly winged costule, apex shortly linear-caudate; segments 22-30 pairs, alternate, sinuses obtuse-acute, 0.3-0.55 cm wide, slightly decumbent, falcate-lanceolate, 2-2.5 × ca. 0.3 cm, basally enlarged, apex shortly acuminate, sterile apex obtusely dentate; terminal pinnules similar to median lateral pinnules, stalked (ca. 1 cm); costules straw-colored, glabrous,

with short spines on both sides of adaxial groove; veins conspicuous, oblique, anastomosing to form a series of narrow areoles along costa, several simple veinlets reaching incision in outer edge of arcuate vein, and veinlet free outward from areole, and basal veinlet of segment 2-forked at base; lamina brown-green, papery when dried, below with brown slender multicellular hairs.

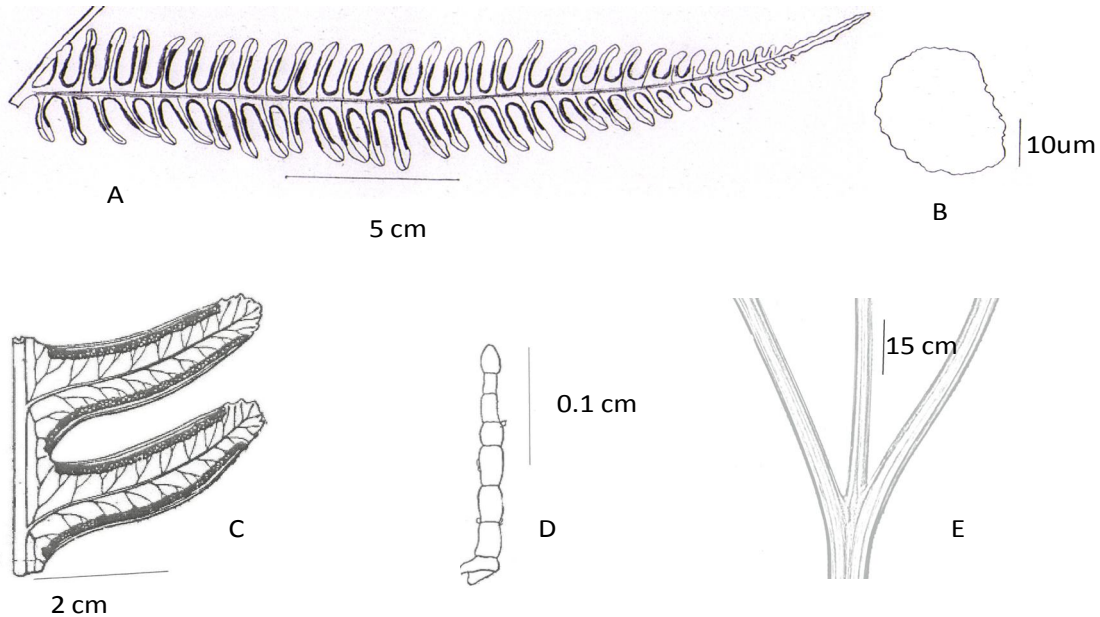


PLATE I: *Pteris austrosinica*; A. Pinnules, B. . Spore; C. Ultimate segment, D. Hairs on the Costules, E. Tripartite stipe apex

Exsiccates: West Bengal, Darjiling hills, Singla, 24.06.2013, *Nayan Thapa* 250A(SJCBH), LB014240 (Llyod's Botanical Garden).

Global Distribution: China (Guangdong, Guangxi, Jiangxi).

Local Distribution: Singla (N27°06'45.8'' E088°16'31''; Alt 335±14).

Literature Cited

- Acharya, K. & Acharya, R. 2001. *Cyathus* and *Geastrum* – An addition to Darjeeling mycoflora. *Indian For.* 127: 959 – 952.
- Ching, R.C & Wu, S.H. 1990. *Pteris*, in Ching, R.C & Shing, K.H. (eds.), *Flora Reipublicae Popularis Sinicae* 3(1):10-89. Science Press, Beijing.
- Ching, R.C. 1965. *Pteris austrosinica*, *Act. Phytotax. Sinica* 16(3):8-19.
- Ching, R.C. 1978. The Chinese fern families and genera. Systematic arrangement and historical origin, *Act. Phytotax. Sinica* 16(3):8-19.
- Ching, R.C. 1978. The Chinese fern families and genera. Systematic arrangement and historical origin, *Act. Phytotax. Sinica* 16(4):16-37.
- Chowdhury, N.P. 1973. *The Pteridophyte Flora of the Upper Gangetic Plain*. Navayug Traders. New Delhi.
- Das, A.P. 1995. Diversity of the Angiospermic flora of Darjeeling Hills. In A.K. Pandey (ed.), *Taxonomy and Biodiversity*. CBS, New Delhi. Pp. 118 – 127.
- Das, A.P. 2000. Floristic studies in Darjiling hills. *Bull. Bot. Surv. India* 46(1-4): 1 – 18. Delhi, India.
- Ebihara, A; Kato, M; Fraser Jenkins, C. R; Parris, B.S; Zhang, X.C; Yang, Y.H; Chioiu, W; Chang, H.M; Lindsay, S; Middleton, D; Praptosuwiryo, T.N; Amoroso, V.B; Barcelona, J.F; Ranil,

- R.H.G; Park, C.H; Murakami. N & Hoyo, A. Rare and Threatened Pteridophytes of Asia 1. An Enumeration of Narrowly Distributed Taxa. *Bull. Natl. Mus. Nat. Sci.*, Ser. B, 38(3), pp. 93–119, August 22, 2012.
10. Fraser-Jenkins, C. 2008. *Taxonomic revision of Three hundred Indian Subcontinental Pteridophytes with a revised census list*. Bishen Singh and Mahendra Pal Singh, Dehradun.
 11. Ghosh, S.R.; Ghosh, B.; Biswas, A. & Ghosh, R.K. 2004. *The Pteridophytic flora of Eastern India*. Vols. 1. Botanical Survey of India, Kolkata.
 12. Hara, H. 1966. *The Flora of Eastern Himalayas*. University of Tokyo, Japan. Pp. 453 –500.
 13. http://www.efloras.org/florataxon.aspx?flora_id=2&taxon_id=242341962.
 14. Jain, S. K. & Rao, R.R. 1977. *Field and Herbarium methods*. Today and Tomorrow's Printers and publisher, New Delhi.
 15. Matthew, K.M. 1971. Pteridophytes from the Darjeeling District. *Bull. Bot. Soc. Bengal* 25(1-2): 97 – 102.
 16. Mehra, P.N. & Bir, S.S. 1964. *Pteridophytic flora of Darjeeling and Sikkim Himalayas*. Bishen Singh and Mahendra Pal Singh, Dehradun.
 17. O'Malley, L.S.S. 1907 (Repr. 1999). *Bengal District Gazetteers Darjiling*. Logos Press. New.

5/9/2015