

Pteris changjiangensis (Pteridaceae), a new species from Hainan Island, China

Xi-Long Zheng^{1,2}, Fa-Guo Wang¹, Rong-Jing Zhang³ & Fu-Wu Xing^{1,*}

¹ South China Botanical Garden, Chinese Academy of Sciences, Guangzhou 510650, China
(*corresponding author's e-mail: xinfw@scib.ac.cn)

² Graduate University of the Chinese Academy of Sciences, Beijing 100049, China

³ College of Life Sciences, South China Agricultural University, Guangzhou 510642, China

Received 21 May 2008, revised version received 10 Feb. 2009, accepted 18 Feb. 2009

Zheng, X. L., Wang, F. G., Zhang, R. J. & Xing, F. W. 2010: *Pteris changjiangensis* (Pteridaceae), a new species from Hainan Island, China. — *Ann. Bot. Fennici* 47: 156–158.

A new species in Pteridaceae, *Pteris changjiangensis* X.L. Zheng & F.W. Xing (sect. *Pteris*) from Hainan Island, China, is described and illustrated. It is similar to *P. simplex* and *P. subsimplex* in appearance, but differs by having an adscendent, tenuous rhizome, homomorphic, separate and simple fronds, and a preference to calcareous habitat.

Key words: ferns, new species, Pteridaceae, *Pteris*, taxonomy

Pteris is a large genus of about 300 species, which are widely distributed in tropical and subtropical regions, reaching to New Zealand, Tasmania and South Africa, and northward to Japan and the United States (Copeland 1958). Sixty-seven of the species are distributed in China (Ching 1983).

Hainan Island, which was separated from the continent in early Quaternary, is located at 107°10'–119°10'E and 3°20'–20°18'N, with an area of 34 000 km². Since the first collections by Dahl (Masamune 1943), more and more studies on the flora of Hainan Island have been published. However, numerous plants previously unknown from Hainan were discovered only in recent years, including some new species (Xing & Li 1993a, 1993b, Yan *et al.* 2004, Zhou & Wang 2005, Zhang *et al.* 2006). During a recent survey of the ethnobotany of Li Minority, a fern species was discovered, which was assignable to

the genus *Pteris*. However, it has some morphological characteristics that distinguish it from all other species in that genus, and thus we describe a new species here.

***Pteris changjiangensis* X.-L. Zheng & F.-W. Xing, *sp. nova* (Figs. 1 and 2)**

Species P. simplicifolia Holttum et P. subsimplicifolia Ching ex Ching et S. H. Wu affinis, sed rhizomatibus assurgentibus, tenuibus; frondibus remotiusculis, simplicibus, uniformibus, fertilibus steriles aequantibus, lanceolatis, 10–20 cm longis, 8–12 mm latis differt.

HOLOTYPE: China. Hainan Island, Changjiang county, Wangxia village, limestone forest, alt. 400–800 m, 16.IX.2007 Xi-Long Zheng 733 (IBSC). — PARATYPE: China. Hainan Island, Changjiang county, Wangxia village, limestone forest, alt. 400–800 m, 10.X.2007 Xi-Long Zheng 1019 (IBSC).

Plant 20–30 cm tall, rhizome tenuous, 3 cm long, 2–4 mm in diameter, adscendent, densely scaly; scales darkly brown, linear-lanceolate and lanceolate, 1–2 mm long, entire, glossy; stipes 5–15 cm long, rufous-stramineous in lower part, light green upwards, base distinctly scaly, nitidulate, upper sulcate; laminae separate, homomorphic, simple, lanceolate, 10–20 cm long, 8–12 mm wide, apex acuminate, base attenuate, margin narrow, cartilaginous, nearly entire and repand at base, serrulate on top; costa stramineous, below prominent, smooth; veins conspicuous, straight, parallel, simple and bifurcate; frond chartaceous, glabrous, grass-green when dry. Sori brown, on margin of upper lamina except for apex; indusium narrow, membranaceous, light grey, entire. Spores (Fig. 2A and B) $25.56 \times 30.37 \mu\text{m}$, trilete, radio-symmetrical, subtriangular in polar view, oval in equatorial view; ornamentation regulate; equatorial flange $5.27 \mu\text{m}$ thick.

DISTRIBUTION AND HABITAT ECOLOGY: Distributed in limestone forest, on ground and rocks, at alt. 400–800 m in Wangxia village, Changjiang county, Hainan Island, China.

This species appears closely related to *P. simplex* and *P. subsimplex*, but it differs from them by several characters (Table 1).

Acknowledgements

This project was supported by the Ministry of Science & Technology China, Basic Research Project (2006FY110500-1) and the Biodiversity Studentship of Kadoorie Farm & Botanic Garden, Hongkong, China. Authors also thank Mrs. Liu Yunxiao for the drawing.

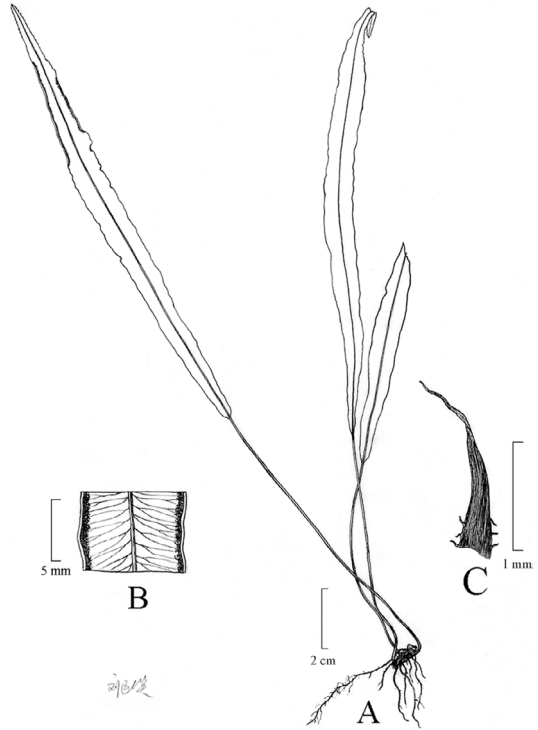


Fig. 1. *Pteris changjiangensis* (from the holotype). — **A:** Habit. — **B:** Segments, showing venation and soral position. — **C:** Stem scale.

References

- Ching, R. C. & Wu, S. H. 1983: Materials for the *Pteris* flora of China. — *Acta Botanica Austro-Sinica* 1: 1–3.
 Copeland, E. B. 1958: *Fern flora of The Philippines* 1. — Manila Bureau of Printing, Manila.
 Masamune, G. 1943: *Flora Kainantensis*. — The Ministry of Foreign Affairs of Taiwan, Taipei.
 Xing, F. W. & Li, Z. X. 1993a: A new species of *Ehretia*

Fig. 2. Spore morphology of *Pteris changjiangensis* (from the holotype). — **A:** Polar view — **B:** Equatorial view.

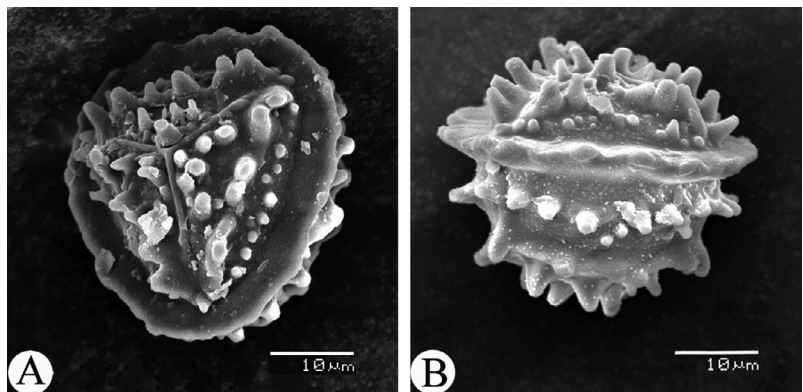


Table 1. Morphological comparison of *Pteris changjiangensis*, *P. simplex* and *P. subsimplex*.

Characters	<i>Pteris changjiangensis</i>	<i>P. simplex</i>	<i>P. subsimplex</i>
Total plant	tenuous, 20–30 cm tall	tenuous, 20–40 cm tall	sturdy, 30–40 cm tall
Rhizome	adscendent, tenuous, totally scaly	erect, short scaly	erect, short, apex scaly
Scale	entire	entire	serrulate
Stipes	5–15 cm long	fertile fronds 12–18 cm, sterile fronds 5 cm	15–20 cm long
Fronds	homomorphic, simple, fertile fronds resemble sterile fronds, 10–20 cm long, 8–12 mm wide, separate	sub-dimorphous, simple and pinnated, pinnae 1–2 pairs, fertile fronds simple, 8–19 cm long, 2.5–3 mm wide; sterile fronds simple and 1–2 pinnate, 1.5–2.5 cm long, 8–20 mm wide, fasciculate	sub-dimorphous, simple and trifoliate, 20 cm long, fertile fronds 1–2 cm wide, sterile fronds 25–30 mm wide, fasciculate
Sori	in lines at frond margin upper, except apex	in lines at frond margin underside	in lines at frond margin underside
Spore ornamentation	regulate	papillate	granulate
Habitat	limestone forest	dense rain-forest	bamboo forest

(Boraginaceae) from Hainan Province. — *Acta Phytotaxonomica Sinica* 31: 472–474.

Xing, F. W. & Li, Z. X. 1993b: A new species of *Paraboea* from Hainan Island. — *Acta Botanica Yunnanica* 15: 121–122.

Yan, Y. H., Qin, X. S., Xing, F. W., Chen, H. F. & Huang, Z. L. 2004: New records for ferns from Hainan Island, China. — *Journal of Tropical and Subtropical Botany*

12: 371–373.

Zhang, R. J., Ye, Y. S., Xing, F. W., Chen, H. Q. & Tian, H. Z. 2006: Some newly recorded plants from Hainan Island of China, X. — *Journal of Tropical and Subtropical Botany* 14: 243–245.

Zhou, S. S. & Wang, H. 2005: Some newly recorded species from Hainan. — *Journal of Tropical and Subtropical Botany* 13: 78–79.