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越南蕨类植物的新记载 (1)*

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摘要: 报道了越南6种新记载的蕨类植物, 包括分布和简短讨论: *Christensenia assamica* (Griff.) Ching, *Arthropteris repens* (Brack.) C. Chr., *Cyrtomium hemionitis* H. Christ, *Cyrtogonellum sichouensis* S. K. Wu & Musuta, *Dryopteris conjugata* Ching, and *Lepisorus sinensis* (H. Christ) Ching.

关键词: 新记载; 蕨类; 越南
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Some New Records of Ferns from Vietnam (1)

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Abstract: Six species of ferns are reported for the first time from Vietnam: *Christensenia assamica* (Griff.) Ching, *Arthropteris repens* (Brack.) C. Chr., *Cyrtomium hemionitis* H. Christ, *Cyrtogonellum sichouensis* S. K. Wu & Musuta, *Dryopteris conjugata* Ching, and *Lepisorus sinensis* (H. Christ) Ching., Their distributions are discussed.

Key words: New records; Ferns; Vietnam

Located in the Indo-China Peninsula, the mainland of Vietnam is about 330 000 km^2. Physiographically, more than two thirds of the country contains mountains and plateaus. Generally, altitude is between 500 and 1 500 m, and the highest peak is 3 143 m. The country has a monsoon tropical climate with dry and rainy seasons, but this is more pronounced in the northern part of the country. The climate can be divided into six different bio-climate types (Nguyen Khanh Van *et al.*, 2000). For example, Lao Cai city, situated in the northern part of Vietnam (22°30′N, 103°57′E, 99 m), has a mean annual temperature of 22.9℃ and mean annual precipitation of 1 764 mm, with the rainy season from March to November. Kontum city, in the south-central part of Vietnam (14°30′N, 108°01′E, 536 m), has a mean annual temperature of 23.4℃ and mean annual precipitation of 1 783

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mm, with the rainy season from April to November. In contrast, Dongphu SITE, in the south portion of the country, has a mean annual temperature of 26.2° and mean annual precipitation of 2 469.2 mm, with almost no difference between the so-called dry and rainy seasons.

In Vietnam, nowadays forests cover only less than 30 percent of the land surface. The country has many forest types, from coastal mangrove communities to evergreen seasonal tropical lowland forests; submontane, montane and subalpine broad-leaved forests; coniferous mostly pine forests; mixed coniferous-broadleaf hardwood forests; dry dipterocarp forests, etc. In this complex environment, plant diversity is high. At present, 9 628 species of vascular plants have been documented from Vietnam, of which 680 species are ferns (Phan Ke Loc, 1998), but many portions of the country still require further botanical exploration. In recent years, exploration in Vietnam has turned up two new genera, one is *Caobangia* (Smith, A. R. & X. C. Zang Novon Vol. 12. no 4. 546 - 550), the other is *Kontumia* (Novon, under review). And it is quite possible other novelties.

In the period of the 1930 s and 1940 s, Tardieu-Blot, Christensen, and Ching completed a number of studies on the ferns of Vietnam. Results of their research are reflected in Tardieu-Blot and Christensens (1939 - 1951) contribution to the "Flore Générale de L' Indo-Chine" series. After this for a long time, there were no reports about ferns of Vietnam until 1991, when Pham Hoang Ho (1991) published the first volume of "An Illustrated Flora of Vietnam", in which 695 species of ferns were documented.

The senior author of this paper was fortunate to have the opportunity to visit Vietnam as a member of delegacy of the Kunming Institute of Botany, Chinese Academy of Sciences, in November of 2002. After this visit, accompanied by Mrs Nguyen Thi Do and other persons, Professor Peng Hua and I completed a short expedition to Lao Cai and Tuyen Quang Provinces in northern Vietnam, collecting about 100 numbers of fern specimens. Recently, with support from the National Geographic Society of America (grant # 7512 - 03), we visited Kon Tum Province in south-central Vietnam and Hoa Binh Province in northern Vietnam in November and December of 2003, and collected 450 numbers of fern specimens. The specimens still have not been determined completely, but we feel confident in reporting the following new distributional records from Vietnam.

1. ***Christensenia assamica*** (Griff.) Ching, Acta Phytotax. Sin. **7**: 202. 1958 & Fl. Reip. Pop. Sin. **2**: 65, pl. **3**: 7 - 10. 1959——*Kaulfussia assamica* Griff., Asiat. Res. **19**: 108, t. 18. 1836.

Specimens examined. **Vietnam**: Lao Cai Prov., Van Ban distr. In lowland seasonal rain forests, about 500 m., 06 January 2003, S. G. Wu *et al*. T-V 496.

Distribution: India, Myanmar and SW China (Yunnan Prov.).

Note: This species provides a single frond with the laminar base often two lobed or it's frond provides 3 leaflets joined by short stalks to the top of the stipe. The sori are circular, large, spread on the underside of the lamina, and noticeably different from those of *C. aesculifolia*.

2. ***Arthropteris repens*** (Brack.) C. Chr., Bernice P. Bishop Mus. Bull. No **177**: 48. 1943; Holttum, Blumea **14** (1): 227. 1966. ——*Nephrolepis repens* Brack., in U. S. Exped. Exp. **16**: 209. 1854. ——*Arthropteris guinanensis* H. G. Zhou et Y. Y. Huang in Guihaia **16** (3): 203. 1996, syn.nov.

Specimens examined. **Vietnam**: Hoa Binh Prov., Tan Lac distr., Quyet Chien mun., Hang vill., 20°32′58″N, 105°11′56″E, about 700 – 960 m. On the trunks of young secondary forests which closed to seasonal rain forests, 30 November 2003, S. G. Wu *et al*. WP-350.

Distribution: Guangxi Province of China; northern Borneo, New Guinea, Samoa, Fiji.

Note: Brackenridge described this species as having entire indusium, but Holttum could not find any indusium in the specimens from Fiji and Samoa. Our specimens are exindusiate as well.

3. ***Cyrtomium hemionitis*** H. Christ, Bull. Acad. Int. Geogr. Bot. **20**: 138 cum fig. 1910; Hu & Ching, Icon. Filicum Sin. **1**: pl. 14. 1930; H. S. Kung, Fl. Reip. Pop. Sin. **5** (2): 190. 2001.

Specimens examined. **Vietnam**: Hoa Binh Prov., Mai Chau distr., Pa Co mun., 20°44′33″N, 104°53′54″E, 1 100 – 1 250 m. On logged slope in closed evergreen broad-leaved forests of limestone submountains which covered with *Pinus kwangtungensis* on the top ridges, 02 December 2003, S. G. Wu *et al*. WP-367.

Distribution: China, southeastern Yunnan, Guizhou.

Note: In the northern part of Vietnam, there are large limestone areas. The ecological environment of this place is quite similar to those of southeastern Yunnan, southern Guizhou, and southern Guangxi Provinces of China. Further botanical exploration in north and central Vietnam will likely result in the discovery of new records for other species though until now to be endemic to southwestern China.

4. ***Cyrtogonellum sichouensis*** S. K. Wu & Musuta, Acta Phytotax. Geobot. **36** (1 – 3): 25, f. 2. 1995; Y. T. Hsieh, Fl. Rep. Pop. Sin. **5** (2): 179. 2001.

Specimens examined. **Vietnam**: Hoa Binh Prov., Mai Chau distr., Pa Co mun., 20°44′38″N, 104°56′19″E, about 1 000 – 1 100 m. On the slightly logged belt in closed evergreen broad-leaved forests of limestone mountains, 03 December 2003, S. G. Wu *et al*. WP-405.

Distribution: China, southeastern Yunnan.

Note: *Cyrtogonellum* was established by R. C. Ching in 1938, but the genus is not accepted universally by botanists. Some floristic treatments have merged this fern group into *Cyrtomium* or even *Polystichum*. The systematic position of this genus requires further study, and we are continuing to keep it separate for now.

5. ***Dryopteris conjugata*** Ching, Bull. Fan Mem. Inst. Biol. Bot. **11**: 63. 1941; Fraser-Jenkins, Bull. Brit. Mus. < Nat. Hist. >, Bot. **18** (5): 341. fig. 9. 1989; S. G. Wu,

Fl. Reip. Pop. Sin. **5** (1): 128, pl. **19**: 1-3. 2000.

Specimens examined. **Vietnam**: Lao Cai Prov., Sapa distr. In secondary evergreen broad-leaved forests, about the elevation 1 200 m., 03 January 2002, S. G. Wu *et al*. T-V 288.

Distribution: China, western and southeastern Yunnan.

6. ***Lepisorus sinensis*** (H. Christ) Ching, Bull. Fan Mem. Inst. Biol. **4**: 63. 1933; Y. X. Lin, Fl. Reip. Pop. Sin. **6** (2): 50. 2000. ——*Neurodium sinensis* H. Christ, Bull. Herb. Boissier **6**: 880. 1898.

Specimens examined. **Vietnam**: Lao Cai Prov., Sapa distr. In secondary evergreen broad-leaved forests, about 1 200 m., epiphytic, 04 January 2002, S. G. Wu *et al*. T-V 422.

Distribution: China, southern and southeastern Yunnan; Myanmar, Thailand.

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