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## *Hymenophyllum bryoides* is a synonym of *Hymenophyllum paramnioides*

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**Keywords:** China, *Hymenophyllum*, *Mecodium*, new synonym, Vietnam.

**Summary.** In this paper, *Hymenophyllum bryoides* is treated as a new synonym of *H. paramnioides*, and the latter is resurrected from the synonymy of *H. polyanthos*.

## *Hymenophyllum bryoides* – новый синоним *Hymenophyllum paramnioides*

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**Ключевые слова:** Вьетнам, Китай, новый синоним, *Hymenophyllum*, *Mecodium*.

**Аннотация.** В данной статье *Hymenophyllum bryoides* рассматривается как новый синоним *H. paramnioides*, а последний восстанавливается как самостоятельный вид из *H. polyanthos*.

*Hymenophyllum paramnioides* (H. G. Zhou et W. M. Chu) X. C. Zhang, 2012, Lycopod. Ferns China: 130; S. K. Lee (ed.), 2013, Flora Guangxi, 6: 71, t. 25, f. 8–10. – *Mecodium paramnioides* H. G. Zhou et W. M. Chu, 1993, Acta Phytotax. Sin. 31: 291, f. 1.

**Holotype:** “CHINA. Guangxi, Wuming, alt. 1200 m. H. G. Zhou 1495” (GXAC; iso – PE, PYU).

*Hymenophyllum bryoides* C. W. Chen, Ebihara et K. Y. Cheng, 2021, Syst. Bot. 46(3): 578. f. 2., **syn. nov.**

**Holotype:** “Vietnam. Lam Dong Province, Lac Duong District, tieu khu 103, near Cong Troi Forest rangers station, 12.077638 N, 108.361380 E, 1880 m. 9 VI 2019. Chen Wade 5785” (SGN; iso – PHH, SING, TAIF, TNS).

**Additional specimens examined:** China: “Guangxi: Wuming, alt. 1200 m. H. G. Zhou 1495”

(GXAC, PE, PYU); “Jinxiu, alt. 1250–1550 m. X. C. Zhang et al.” (PE).

A small filmy fern so far was only collected from China (Guangxi and Jinxiu) and Vietnam (Lam Dong). It grows on sandstone rocks or on tree trunks under evergreen broadleaf forest.

It was photographed and collected by the present author in Jinxiu county, northeast of the type locality of *Mecodium paramnioides* H. G. Zhou et W. M. Chu and transferred into *Hymenophyllum* (Zhang, 2012) based on the classification system proposed by Ebihara et al. (2006). Unfortunately, this beautiful small filmy fern was put into the already so many synonymies of *Hymenophyllum polyanthos* (Sw.) Sw. in Flora of China (Liu et al., 2013) without any explanations.

*Hymenophyllum polyanthos* sensu lato is widely distributed in the tropics, however, recent molecular



Fig. *Hymenophyllum paramnioides* from Guangxi, Jinxiu, Mt. Shengtang: A – habit; B – plant (Photographed by X.-C. Zhang).

studies showed that it is non-monophyletic, and represents several lineages: 1) Neotropics (including the type lineage); 2) several Asian lineages and 3) two lineages from Malesia and Pacific regions to South and Central America (Vasques et al., 2019). Leaf of *H. paramnioides* is simply divided, pinnate at lower half and pinnatifid at upper part while it is more divided in *H. polyanthous*, often 2- to 4-pinnatifid. Extensive herbarium studies of Chinese and Asian specimens (including the type collections) and observations in nature have been showed that *H. polyanthos* s. l. and *H. paramnioides* (H. G. Zhou et W. M. Chu) X. C. Zhang are two distinct species, which is confirmed by their morphological difference (Table).

When *Hymenophyllum bryoides* C. W. Chen, Ebihara et K. Y. Cheng (Chen et al., 2021) was recently described from Central Vietnam, it was compared with the New Caledonia *Hymenophyllum mnioides* Baker, a species which is quite different from *H. polyanthos* s. l., and the most similar species

*Mecodium paramnioides* H. G. Zhou et W. M. Chu was overlooked, perhaps because it had been treated as a synonym in Flora of China. After examination of the original descriptions of both species, and the type specimens and additional collections, I could not find any important difference between the Guangxi plant (see color photos) and Vietnam plant (see Chen et al., 2021, fig. 2). Therefore, it is better to treat *H. bryoides* as a synonym of *H. paramnioides*.

Morphology of *H. paramnioides* agrees with the general circumscription of *Hymenophyllum* subgen. *Mecodium* (Ebihara et al., 2006) and further molecular evidence will be added after sequencing the Guangxi materials. It is also worth noting, that the floras of Guangxi and Vietnam are very close to each other and share many species which are endemic to this region, such as *Caobangia squamata* A. R. Smith et X. C. Zhang (2002), a rare species on top of limestone mountains originally found in north Vietnam and later discovered in South Guangxi.

Table  
Morphological comparisons among *Hymenophyllum polyanthos*, *H. paramnioides* and *H. bryoides*

| Species/Characters                | <i>Hymenophyllum polyanthos</i> s. l.            | <i>Hymenophyllum paramnioides</i>                | <i>Hymenophyllum bryoides</i>  |
|-----------------------------------|--|--|--------------------------------|
| <b>Fronde length, cm</b>          | 5–15   | 2–3  | 1.5–2.5                        |
| <b>Rhizome (color, diam., mm)</b> | brown or black, 0.2–0.3                          | brown, ca. 0.2                                   | brown, ca. 0.1                 |
| <b>Stipe length (cm)</b>          | 0.4–8  | 0.5–2  | 0.3–0.7(1.0)                   |
| <b>Lamina dissection</b>          | 1- or 2-pinnate to                               |  |                                |
| <b>4-pinnatifid</b>               | pinnatifid to pinnate                            | pinnatifid to pinnate                            |                                |
| <b>Lamina at base/apex</b>        | cuneate, cordate, or rounded/acuminate or obtuse | cuneate, cordate, or rounded/acuminate or obtuse | acute/obtuse                   |
| <b>Lamina shape</b>               | triangular-ovate or obovate to linear            | oblong, oblanceolate or obovate                  | oblong                         |
| <b>Lamina length (cm)</b>         | 1–13 × 0.3–5                                     | 1–1.5 × 0.3–0.6                                  | 0.5–1.5 × 0.2–0.5              |
| <b>Number of pinna pairs</b>      | 4–15   | 5–7  | 4–6(10)                        |
| <b>Pinnae</b>                     | oblong to ovate or narrowly ovate                | linear or oblong, 1–4 × 0.8–1.5 mm               | oblong to lanceolate, 4 × 1 mm |
| <b>Lamina margin</b>              | entire   | entire   | entire                         |

#### REFERENCES / ЛИТЕРАТУРА

- Chen C. W., Ebihara A., Cheng K. Y., Hsu T.-C., Huang Y.-M., Dang V. D., Luu H. T., Le V. S., Li C.-W. 2021. Studies of Vietnamese pteridophyte flora 1. *Systematic Botany* 46(3): 573–581. DOI: 10.1600/036364421X16312067913507
- Ebihara A., Dubuisson J. Y., Iwatsuki K., Hennequin S., Ito M. 2006. A taxonomic revision of Hymenophyllaceae. *Blumea* 51(2): 221–280. DOI: 10.3767/000651906X622210

**Liu J. X., Zhang Q. Y., Ebihara A., Iwatsuki K.** 2013. Hymenophyllaceae. In: *Flora of China*. Vol. 2–3. Beijing: Science Press and St. Louis: Missouri Botanical Garden Press. Pp. 93–109.

**Smith A. R., Zhang X.-C.** 2002. *Caobangia*, a new genus and species of Polypodiaceae from Vietnam. *Novon* 12(4): 546–550.

**Vasques D. T., Ebihara A., Hirai R. Y., Prado J., Motomi I.** 2019. Phylogeny of *Hymenophyllum* subg. *Mecodium* (Hymenophyllaceae), with special focus on the diversity of the *Hymenophyllum polyanthos* species complex. *Pl. Syst. Evol.* 305: 811–825. DOI: 10.1007/s00606-019-01609-y

**Zhou H. G., Chu W. M.** 1993. One new species of *Mecodium* (Hymenophyllaceae) from Guangxi. *Acta Phytotax. Sin.* 31(3): 291–293. [In Chinese]

**Zhang X.-C.** 2012. *Lycophytes and Ferns of China*. Beijing: Peking University Press. 715 pp. [In Chinese]