

NORDIC JOURNAL OF BOTANY

Research

A new combination for a Chinese *Zingiber* (Zingiberaceae), *Z. fallax*

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Nordic Journal of Botany

2019: e02230

doi: 10.1111/njb.02230

Subject Editor:

Alexander Sennikov

Editor-in-Chief: Torbjörn Tyler

Accepted 14 January 2019

Boesenbergia fallax Loes., previously known as a synonym of *B. longiflora* (Wall.) Kuntze, is recognized as belonging to the genus *Zingiber* Mill. Furthermore, it is conspecific with *Z. liangshanense* Z. Y. Zhu, which was incorrectly treated as a synonym of *Z. striolatum* in 'Flora of China'. A new combination, *Z. fallax* (Loes.) L. Bai, Juan Chen & N. H. Xia is proposed here, and *Z. liangshanense* is treated as its synonym. Lectotypes are designated for *B. fallax* and *Z. liangshanense*. *Zingiber fallax* is now known to occur in southern Sichuan Province and northwestern to central Yunnan Province, China.

Keywords: *Boesenbergia fallax*, *B. longiflora*, *Zingiber liangshanense*, *Z. striolatum*

Introduction

As part of a taxonomic revision of the genus *Boesenbergia* Kuntze (1891, p. 685) in China, we investigated the protologues, original materials/type specimens of all names that had been applied to taxa of this genus in the country (Wu and Chen 1981, Tong 1997, Wu and Larsen 2000). This study revealed that the original material of *Boesenbergia fallax* Loes. represented a species from the genus *Zingiber* Mill. (1754, unpaginated). The nomenclatural consequences resulting from this discovery are the subject of this paper.

Boesenbergia fallax Loes. (1930, p. 572) was published as a replacement name for the illegitimate name *Kaempferia fallax* Lingelsh. & Borza (1914, p. 385) (ICN Art. 6.14. Ex. 18, Turland et al. 2018), which is a later homonym of *Kaempferia fallax* Gagnep. (1903, p. 259) (ICN Art. 53.1). *Boesenbergia fallax* was accepted as a distinct species in 'Flora Reipublicae Popularis Sinicae' (Wu and Chen 1981) and 'Flora Yunnanica' (Tong 1997), but was treated as a synonym of *Boesenbergia longiflora* (Wall.) Kuntze (1891, p. 685) in 'Flora of China' (Wu and Larsen 2000). In the protologue of *Kaempferia fallax*, Lingelsheim and Borza (1914) stated that their study was based on collections of H. F. Limpricht preserved at WRS� and B, but they cited a single collection, H. F. Limpricht 849. We have located a specimen of H. F. Limpricht 849 at WRS� (Fig. 1) which well matches the description and the collection information,





Figure 1. Lectotype of *Boesenbergia fallax* Loes., H. F. Limpricht 849, WRSL.

but we have been unable to locate any relevant specimen at B (most likely destroyed during the Second World War). This specimen at WRSL is therefore selected below as the lectotype of *Boesenbergia fallax* Loes.

The lectotype of *Boesenbergia fallax* consists of two leafy shoots and several spikes with many well-pressed flowers. Its spirally arranged bracts and beak-shaped, rather long anther appendages clearly show that it is a member of the genus *Zingiber*, not *Boesenbergia* (in *Boesenbergia* the bracts are distichous and the anther appendages are small or absent). Based on a careful comparison of the type specimen and protologue of *Boesenbergia fallax* with herbarium specimens and living collections of *Zingiber* in China, we are confident that *B. fallax* is the same taxon as *Z. liangshanense* Z. Y. Zhu (1987, p. 33) (Fig. 2). Zhu (1987) described this species from material collected in Panzhihua City, Sichuan, but it was subsequently incorrectly treated as a synonym of *Z. striolatum* Diels (1900, p. 262) in 'Flora of China'. *Boesenbergia fallax* was originally



Figure 2. Lectotype of *Zingiber liangshanense* Z. Y. Zhu, J. L. Zhang 243, EMA.

described from Lufeng County, Chuxiong Yi Autonomous Prefecture, Yunnan, which is geographically close to the type locality of *Z. liangshanense*. Since *Boesenbergia fallax* is a legitimate name dating from 1930 (ICN Art. 58.1. Ex. 1), a new combination *Zingiber fallax* (Loes.) L. Bai, Juan Chen & N. H. Xia is proposed below, with *Z. liangshanense* (dating from 1987) treated as its synonym. Zhu (1987) cited J. L. Zhang 243 at EMA as the "Type" of *Z. liangshanense*. There are three sheets of this collection at EMA, but two of them are annotated by Zhu with the species name and designated by him as "Typus!". Following the discussion of McNeill (2014), these three EMA sheets are considered as syntypes. Accordingly, we selected one sheet which is annotated as "typus" by Zhu and bears the EMA institutional 'Type specimen' stamp (in Chinese) as the lectotype of *Z. liangshanense*.

A detailed treatment of *Zingiber fallax* and several close relatives with purple flowers, including *Z. striolatum*, will soon be provided. From other purple flowered species, *Z. fallax* can be recognized by the following characters. It has highly distinctive growth characteristics (as noted in the protologue, and which can be observed on herbarium specimens) in that during flowering the leafy shoots are only partially

developed, i.e. they are 15–30 cm tall and with 2–6 laminas, and the roots are relatively short with obovoid root tubers. After flowering, however, the leafy shoots increase in height (45–60 cm tall) and possess 5–12 laminas, and the roots elongate and possess usually fusiform root tubers. *Zingiber fallax* is also distinctive in having tubular leaf sheaths (at least at their base, resembling species of *Roscoea* Smith (1805, p. 97) and the margins of the leafy sheaths and the ligules are often patent instead of being closely appressed to the pseudostem.

Zingiber fallax is now known to occur in southern Sichuan Province (Liangshan Yi Autonomous Prefecture and Panzhihua City) and northwestern to central Yunnan Province (Chuxiong Yi Autonomous Prefecture, Dali, Lijiang, Kunming City and Yuxi City), China. Several collections from southern Yunnan had previously been identified as *Boesenbergia fallax*. These collections are now known to be *B. maxwellii* Mood, L. M. Prince & Triboun (2013, p. 72) (C. W. Wang 75369, 78048, both from Xishuangbanna Dai Autonomous Prefecture) and *B. kingii* Mood & L. M. Prince (2013, p. 76) (C. S. Sin 906, from Lincang City, Sino-Japan Expedition 130, from Xishuangbanna Dai Autonomous Prefecture, and S. Q. Tong & Y. M. Xia 24986, from Pu'er City).

***Zingiber fallax* (Loes.) L. Bai, Juan Chen & N. H. Xia comb. nov.**

Basionym: *Boesenbergia fallax* Loes. (1930, in: Engler and Prantl, Die natürlichen Pflanzenfamilien, Engelm., p. 572).

Based on the same type: *Kaempferia fallax* Lingelsh. & Borza (1914, p. 385), nom. illeg., non Gagnep. (1903, p. 259).

Type: China. Yunnan Province: [Chuxiong Yi Autonomous Prefecture] Lu-Feng Hsien [Lufeng County], ca 1900 m a.s.l., 27 Jul 1913, H. F. Limpricht 849 (WRS!) (lectotype designated here).

Taxonomic synonym: *Zingiber liangshanense* Z. Y. Zhu (1987, p. 33), syn. nov.

Type: China. Sichuan Province: Dukou Shi [Panzhihua City], 24 Jul 1977, J. L. Zhang 243, annotated as typus by Zhu and bearing the EMA institutional 'Type specimen' stamp (in Chinese) (EMA!) (lectotype designated here; isolectotypes two sheets).

[*Z. striolatum* auct. non Diels: Wu and Larsen in Wu and Raven (2000, p. 332), quoad syn. *Z. liangshanense* Z. Y. Zhu].

Acknowledgements – We thank the curators of EMA, IBSC, KUN, PE and SYS for letting us examining specimens in their care and Dr Krzysztof Swierkosz (WRS!) for providing images of the type specimen of *Boesenbergia fallax* and Dr Vogt Robert (B) for checking the existence of its original material.

Funding – The research of the first and second author was supported by National Natural Science Foundation of China (grant no. 31170185, 31200161) and the research of third author was supported by the Orientation Training Programme for post-doctoral from Yunnan Province.

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