Porella longifolia (Steph.) S.Hatt. and Porella densifolia var. robusta (Steph.) S.Hatt. (Porellaceae, Marchantiophyta) excluded from the liverwort flora of China

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Abstract

Porella is a large genus with 86 currently accepted species. China is its center of diversity. Two narrowly distributed taxa, Porella densifolia var. robusta and P. longifolia are excluded from the liverwort flora of China because vouchered specimens are assignable to other species. The illustrations of Porella densifolia var. densifolia and P. acutifolia var. acutifolia based on Chinese plants are provided. Porella longifolia is thus far known only from Sumatra, Indonesia.

Keywords: China, Indonesia, liverworts, Porella acutifolia, Porella densifolia, Porella japonica, Porella longifolia, Porella perrottetiana, Porella stephaniana

Introduction

Porella Linnaeus (1753: 1106) is the largest genus in its own family Porellaceae with 86 currently accepted species (Jia & He 2015; Söderström et al. 2016; Müller 2017; Qian & Zhu 2017; updated data). China is its center of diversity with 39 species currently listed in Jia & He’s (2013) “Species Catalogue of China”.

Porella densifolia var. robusta (Stephani 1910: 313) Hattori (1969: 343) was originally described from Japan as Madotheca robusta (Stephani 1910: 313). Chang (1988) reported its occurrence in Hubei Province of China based on a specimen cited below. This is the only record of this taxon in China. Chang’s report, however, was omitted from the checklists of Chinese liverworts and hornworts (Piippo 1990; Jia & He 2013).

Porella longifolia (Stephani 1910: 305) Hattori (1969: 351) was originally described from Sumatra as Madotheca longifolia (Stephani 1910: 305). It is characterized by long, flat leaf lobes with a toothed apex and nearly straight lateral margins, flat and narrowly rectangular underleaves, leaf lobules very densely toothed along the margins, oblong leaf lobes almost horizontally spreading and underleaf bases not decurrent (Hattori 1969). Porella longifolia is a rare species known only from Sumatra and China (Jia & He 2013). In China this species was first recorded in Yunnan Province by Bai (2000). Since then, it has been reported for Chongqing, Guangdong, Guangxi and Xizang (Wang 1993; Xiong 2007; Jia 2012; Xie et al. 2012; Zhu & Cheng 2013; Jia & He 2013; Liu et al. 2016).

In the course of a taxonomic revision of Porella in China, we tried to examine all vouchered specimens of Porella densifolia var. robusta and P. longifolia. Our studies reveal that P. densifolia var. robusta and P. longifolia have to be excluded from the liverwort flora of China because the previous reports for China were based on erroneous identifications. The only available Chinese specimen previously determined as P. densifolia var. robusta is assignable to P. densifolia (Stephani 1894: 219) Hattori (1944: 109) var. densifolia, a very common taxon in China. The Chinese specimens previously reported as P. longifolia belong to Porella acutifolia (Lehmann 1838: 8) Trevisan (1877: 408) var. acutifolia, Porella japonica (Sande Lacoste 1856: 105) Mitten (1891: 202) var. japonica, Porella perrottetiana (Montagne 1842: 15) Trevisan (1877: 408) var. perrottetiana, and Porella stephaniana (Massalongo 1897: 23) Hattori (1951: 81).
Taxonomy

The representative specimens previously reported as *Porella densifolia* var. *robusta* and *P. longifolia* are enumerated below.


Specimens examined:—CHINA. Yunnan, Yangbi Co., Meixi Commune (Village), Maluchanghoushan, on tree trunk, 25 May 1963, *W.-M. Zhu 63525* (HIMC, reported by Bai (2000, p. 364 as *Porella longifolia*)).


Notes:—In China *Porella longifolia* was first described and illustrated by Bai (2000) based on the specimen (*W.-M. Zhu 63525*) cited above. The Yunnan plant, however, has triangular-oblong leaf lobes, strongly decurrent underleaf bases and almost entire lateral lobular margins (Fig. 1), which do not fit *Porella longifolia*. Jia (2012) also reported *P. longifolia* for Xizang and Yunnan. Although the voucher specimens are not available for the present study, we believe...
that the record in China by Jia (2012) is also based on the erroneous determination because the description of *P. longifolia* in Jia (2012, p. 206) is same as that from Bai (2002) based on the specimen from Yunnan (*W.-M. Zhu 63525*). With its exclusion in China, *Porella longifolia* is still a rare species thus far known only from Sumatra, Indonesia.


Notes:—*Porella densifolia* var. *robusta* was originally described based on U. Faurie’s collection from Japan by Stephani (1910) as *Madotheca robusta*. It is separated from *P. densifolia* var. *densifolia* by the obtuse apex of the leaf lobe usually with 3−4 teeth, and leaf lobule apex often with 1−2 teeth as shown in Hattori (1969). The Hubei plants,
previously reported as *Porella densifolia* var. *robusta* by Chang (1988), have subacute to acute apex of the leaf lobe strongly 1–2-toothed, and obtuse apex of the leaf lobule without any teeth (Fig. 2), which fits well with *P. densifolia* var. *densifolia*. *Porella densifolia* var. *densifolia* is one of the most common *Porella* taxa in China, and also known from Japan, Korea and Vietnam (Pócs 1968; Hattori 1978). With its exclusion in China, *Porella densifolia* var. *robusta* is thus far known only from Japan.


Representative specimens examined:—CHINA. Guangxi, Jingxi Co., Renzhuang Town, Bangliang Village, Bangliang National Nature Reserve, 650–750 m, on rock, 19 Aug. 2008, Y.-M. Wei 8-626A (IBK, reported by Xie et al. (2012 as *P. longifolia*)); *ibid.*, 22°54.927′ N, 106°29.164′ E, 650–750 m, on rock, Y.-M. Wei 8-632 (IBK, reported by Xie et al. (2012 as *P. longifolia*)). Guangxi, Napo Co., Baisheng Town, Nonglong Village, Laohutiao Nature Reserve, 23°14.25′ N, 105°33.25′ E, 1160–1200 m, on rock, 19 Oct. 2008, Y.-M. Wei 10-596 (IBK, reported by Xie et al. (2012 as *P. longifolia*)); *ibid.*, 23°14.25′ N, 105°33.25′ E, 1160–1200 m, on rock, 19 Oct. 2008, Y.-M. Wei 10-640A (IBK, reported by Xie et al. (2012 as *P. longifolia*)).

**Notes**:—*Porella japonica* var. *japonica* is known from Bhutan, China, India, Indonesia, Japan, Korea, the Marianas, Myanmar, Sri Lanka, the Philippines, and Vietnam (Inoue 1959; Miller et al. 1983; Long & Grolle 1990; Long & Rubasinghe 2014; Shu et al. 2017). *Porella japonica* is divided into one subspecies and two varieties (Söderström et al. 2016). The voucher specimens reported by Xie et al. (2012) as *P. longifolia* belong to *Porella japonica* var. *japonica*.


Specimens examined:—CHINA. Guangdong, Ruyuan Co., Ruyuan Forestry Bureau, Longxidong, on valley in dense forest, 21 Jun. 1973, B.-J. Lin 1131 (HSNU, IBSC reported by Zhu & Cheng (2013 as *P. longifolia*)).

**Notes**:—*Porella perrottetiana* comprises four varieties (Söderström et al. 2016). The voucher specimen reported by Zhu & Cheng (2013 as *P. longifolia*) is assignable to *Porella perrottetiana* var. *perrottetiana*.


Specimens examined:—CHINA. Chongqing, Chengkou Co., Dong’an Town, Xingtian Village, 31°43′36.01″ N, 109°08′29.82″ E, 1430–1440 m, on rock, Aug. 2012, Y. Liu 1904 (CTC, reported by Liu et al. (2016 as *P. longifolia*)).

**Acknowledgements**

We are grateful to the curators of CTC, G, GACP, HBNU, HMC, HKBU, HSNU, IBK, IBSC, IFP, KUN, NIC, KUN, PE, and SDNU for making specimens available for study through loans or visits, and to X.-L. Bai, Y. Jia, Q. Li, Y.-M. Wei, Y.-X. Xiong, J.-C. Zhao and Z.-T. Zhao for help in loan of specimens. This research is supported by the National Natural Science Foundation of China (NSFC) (nos. 31570206 & 31770224).

**References**


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*PORELLA LONGIFOLIA & PORELLA DENSIFOLIA VAR. ROBUSTA*  Phytotaxa 350 (2) © 2018 Magnolia Press • 185