



The status of *Porella subparaphyllina* J.S.Lou (Marchantiophyta, Porellaceae), a poorly known species endemic to Yunnan, China

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Porella densifolia (Stephani 1894: 214) Hattori (1944: 20) was first described based on a collection made by the Frenchman P.J.M. Delavay during his expedition to northwestern Yunnan, China. At present *Porella densifolia* is divided into three subspecies, *P. densifolia* subsp. *densifolia*, *P. densifolia* subsp. *andamana* Hattori (1969: 346), and *P. densifolia* subsp. *appendiculata* Stephani (1910: 301) Hattori (1969: 343) (Söderström *et al.* 2016). *Porella subparaphyllina* Lou (1987: 483) is a very rare species known only from its type locality in northwestern Yunnan. Recently we collected many fresh samples from the type localities of both *P. subparaphyllina* and *Porella densifolia* subsp. *densifolia* in northwestern Yunnan. Our examination of the type specimens and recent collections from type localities in Yunnan and other Chinese localities reveal that *P. subparaphyllina* fits well in *Porella densifolia* subsp. *densifolia*. The morphological affinity between *P. subparaphyllina* and *P. densifolia* subsp. *densifolia* is also confirmed by our unpublished molecular data (ITS, *trnL-F* and *rbcL*; not shown here) which show that two accessions of *Porella subparaphyllina* from the type locality are nested within a strongly supported clade with several accessions of typical *Porella densifolia* subsp. *densifolia*. Therefore, *Porella subparaphyllina* is proposed to be conspecific with *P. densifolia* subsp. *densifolia*.

Porella densifolia (Steph.) S.Hatt. subsp. *densifolia*, J. Jap. Bot. 20: 109. 1944.

Basionym:—*Madotheca densifolia* Steph., Mém. Soc. Nat. Sci. Nat. Math. Cherbourg 29: 219. 1894 (Stephani 1894). Type:—CHINA. Yunnan Prov.: “bois de Kutui, au-dessus de Mo so You”, 19 July 1889, P.J.M. Delavay s.n. (holotype: G012063!).

= *Porella subparaphyllina* J.S.Lou, Acta Phytotax. Sin. 25(6): 483. 1987 (Lou 1987). Type:—CHINA. Yunnan Prov.: Gongshan Co., Dulongjiang, 1900 m, 2 Sept. 1982, M.-Z. Wang 11493-b (holotype: PE!). *syn. nov.*

Representative specimens examined:

Specimen initially identified as *Porella subparaphyllina*:—CHINA. Yunnan, Gongshan Co., Dulongjiang Village, 2000 m, M.-Z. Wang 11535-a (PE).

Representative specimens of *Porella densifolia* subsp. *densifolia*:—CHINA. Anhui, Taiping Co., Jiulongfeng Nature Reserve, 790 m, on fallen wood, 30 Apr. 2016, X.-Q. Shi 20160430-48 (HSNU). Fujian, Dehua Co., Daiyunshan Nature Reserve, 860 m, on tree base, 28 Oct. 2009, X.-Q. Zhang *et al.* 20091028-42 (HSNU). Guangxi, Napo Co., Baidu Town, Nonglong Village, 23°14.235' N, 105°32.490' E, 1244 m, on rock with a thin layer of soil, 18 Aug. 2013, J. Wang *et al.* 20130818-15 (HSNU). Xizang, Linzhi Prefecture, Yaluzangbu (Yarlung Tsangpo) Grand Canyon National Nature Reserve, Pailong Town, near Daguaiwan, 30°01.207' N, 95°00.518' E, 2018 m, on rock, 26 Aug. 2014, J. Wang *et al.* 20140826-9 (HSNU); Chayu (Zayu) Co., Cibagou National Nature Reserve, 28°33.725' N, 97°04.675' E, 1673 m, on rock, 29 Aug. 2014, J. Wang *et al.* 20140829-164 (HSNU). Yunnan, Gongshan Co, Dulongjiang Town, from Kongdang Village to Longyuan Village, 27°53.176' N, 98°20.555' E, 1478 m, on tree trunk, 6 Jul. 2012, J. Wang *et al.* 20120706-38 (HSNU); Gongshan Co., Dulongjiang Town, near Xiongdang Village, 28°06.224' N, 98°19.325' E, 1943 m, on tree bark, 19 Jan. 2015, J. Wang *et al.* 20150119-97 (HSNU); Gongshan Co., Dulongjiang Town, near Dinggei Village, 27°57.320' N, 98°19.730' E, 1612 m, on tree trunk, 21 Jan. 2015, J. Wang *et al.* 20150121-78 (HSNU); Gongshan Co., Dulongjiang Town, from Qinlandang Village to Maku Village by the old road, 27°40.869' N, 98°17.489' E, 1601 m, on rock, 23 Jan. 2015, J. Wang *et al.* 20150123-129 (HSNU); Gongshan Co., Bingzhongluo Town, 28°00.560' N, 98° 35.704'E, 1943 m, on tree trunk, 20 Sept. 2010, Y. Yu 20100920-14 (HSNU); Lushui Co., from Pianma Town to Gangfang Village, near Ganhuoluo Bridge, 26°03.487' N, 98°37.163' E, 2091 m, on rotten wood, 26 Jan. 2015, J. Wang *et al.* 20150126-40 (HSNU); Shangri-La (Xianggelila)

City, Luoji Town, from Niru Village to Selie Lake. 27°58'12.34" N, 100°03'18.27" E, 2819 m, 19 Sept. 2016, Y.-L. Xiang 20160919-7 (HSNU); Weixi Co., Weideng Town, near Luowu Village, 27°05.156' N, 99°04.844' E, 2327 m, on tree trunk, 27 Jan. 2015, J. Wang *et al.* 20150127-7 (HSNU); Yulong Co., Mingyin Town, 27°13.336' N, 100°21.094' E, 2805 m, on rock, 14 Apr. 2013, J. Wang & K. Qian 20130414-8 (HSNU). Zhejiang, Linan Co, Tianmushan Nature Reserve, near Chanyuansi, 30°19'20.98" N, 119°26'30.72" E, 368 m, on rock, 24 Apr. 2013, R.-L. Zhu & C.-X. Zhao 20130424-7 (HSNU).

Notes:—*Porella subparaphyllina* was a poorly known species which was known only from the type specimens from northwestern Yunnan (Piippo *et al.* 1998; Jia & He 2013). It was omitted in Piippo's (1990) checklist of Chinese hepatics and Gao & Cao's (2000) *Flora Yunnanica*. *Porella densifolia* subsp. *densifolia* is characterized by the densely imbricate leaf lobes, leaf lobules and underleaves. The apex of leaf lobes, however, are rather variable even on the same stem: usually acute to acuminate with 1–2(–4) teeth, but occasionally obtuse to rounded as discussed in Pócs (1968) and Luo (1989). An examination of numerous specimens reveal that the typical *Porella densifolia* subsp. *densifolia* has remarkable leaf lobules which are recurved along the distal lateral margin in herbarium specimens. *Porella densifolia* was considered to be a complex and its infraspecific treatment is still not satisfactory (Hentschel *et al.* 2007). A study on the status of the Indian *Porella densifolia* subsp. *andamana* and the Himalayan *P. densifolia* subsp. *appendiculata* and related taxa is in progress.

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