

Liverworts and hornworts of Taiwan: an updated checklist and floristic accounts

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An updated checklist of the liverworts (Marchantiophyta) and hornworts (Anthocerotophyta) of Taiwan is presented. Based on published records, the present checklist includes 512 species of liverworts belonging to 116 genera in 52 families and 19 species of hornworts belonging to six genera in three families. Lejeuneaceae with 121 spp. in 24 genera is the largest family, containing ca. 23% of the total number of species. Genera with more than ten species are *Frullania* (49 spp.), *Cololejeunea* (41 spp.), *Plagiochila* (36 spp.), *Radula* (26 spp.), *Lejeunea* (25 spp.), *Bazzania* (18 spp.), *Scapania* (18 spp.), *Solenostoma* (17 spp.), *Riccardia* (15 spp.), *Porella* (12 spp.) and *Heteroscyphus* (11 spp.). Twenty-five taxa are hitherto known only from Taiwan. Forty-seven formerly recorded species are dubious and excluded from this checklist. *Chiloscyphus engelii* R.L. Zhu & M.J. Lai *nom. nov.* as well as *Folioceros verruculosus* (J. Haseg.) R.L. Zhu & M.J. Lai *comb. nova*, *Lejeunea barbata* (Herzog) R.L. Zhu & M.J. Lai, *comb. nova* and *Lejeunea luzonensis* (Steph.) R.L. Zhu & M.J. Lai, *comb. nova* are proposed. *Cololejeunea peraffinis* fo. *corticola* (Benedix ex Herzog) S.H. Lin is treated as a new synonym of *Cololejeunea peraffinis* (Schiffn.) Schiffn.

Introduction

The island of Taiwan is 448 km long, with a maximum width of 144 km, and a total area of 36 000 km². Plains below 100 m a.s.l. occupy 31.3% of the total surface, areas between 100–1000 m occupy 37.2%, and 31.5% of the area is above 1000 m. The highest mountain peak, Mt. Yushan, reaches 3952 m.

Bisected by the Tropic of Cancer and situated between two branches of the warm Kuroshio (or Kuroshio) sea current, Taiwan has a distinct

oceanic subtropical–tropical climate tempered by winds from the sea and by frequent rains and typhoons. Humidity is normally high throughout the year, and the mean annual rainfall is about 2000 mm. With the exception of a few mountain areas, the mean annual temperature is ca. 22 °C, with the lowest temperatures ranging from 12 °C to 17 °C. The abundance of rain, the high temperatures and varied topography make Taiwan rich in vegetation types. The vascular flora consists of more than 4000 species, of which ca. 26% are endemic (Lai 2003). It is estimated that

52% of the land is covered by forests, of which the Tertiary relicts/conifers *Taiwania cryptomerioides* and *Chamaecyparis formosensis* are world-famous.

The studies on liverworts and hornworts of Taiwan can be traced back to the first report on *Marchantia cuneiloba* (= *M. emarginata* subsp. *tosana*) by Stephani (1897) based on A. Henry's collection from the south of Taiwan during the period of 1892–1895 (Kuo & Chiang 1988, Lin 2000). Early collections of Taiwan hepatics were made by R. Oldham, A. Henry, K. Miyake and U. Faurie, and their specimens, studied by Stephani (1900–1924), were described as 24 taxa, including 19 species unknown until then. From then on, the major fieldwork and research on Taiwan liverworts and hornworts were conducted by Japanese bryologists. The main contributions include Hattori (1941, 1942a, 1942b, 1942c, 1943, 1944, 1951b, 1980a, 1980b), Horikawa (1932, 1934a, 1934b, 1935, 1936, 1939, 1951), Inoue (1967, 1978, 1982, 1985), Mizutani (1961, 1964, 1967, 1968), Okamura (1916), Yamada (1979), Yamada and Inoue (1988), and Yamada and Lai (1979). Since the 1950s, many studies on Taiwan liverworts and hornworts have been published by European and Chinese taxonomists and the results were published mainly by Herzog and Noguchi (1955), Huang and Lin (2009), Huang *et al.* (2009), Inoue and Yang (1966), Kuo and Chiang (1988), Lai (1990, 1995, 2002), Lai and Wang-Yang (1976), Lin (1981, 1990, 2000), Lin and Yang (1992), Schuster (1998), Váña and Inoue (1983), Wu and Yamada (1996, 1997, 2000), Wu *et al.* (2002), Yang (1960a, 1960b, 1963, 1965, 1966, 2009), Yang and Lin (2008a, 2008b, 2008c, 2009a, 2009b), Zhu and So (1998a, 2000a, 2000b, 2001) and Zuo and Cao (2007).

Four checklists of the liverworts and hornworts of Taiwan have been compiled, by Lai and Wang-Yang (1976), Kuo and Chiang (1988), Piippo (1990) and Lin (2000), respectively. The first of those checklists contained 385 species in 116 genera; Kuo and Chiang (1988) listed 503 species in 124 genera; Piippo (1990) enumerated 489 species in 122 genera; and Lin (2000) presented the most recent checklist with 487 species in 121. Over the past decade, a number of nomenclatural changes and new additions have been reported for the Taiwan liverwort and horn-

wort flora due to taxonomic revisions, floristic investigations, and molecular phylogenetic studies. Therefore publishing an updated checklist is necessary.

Floristic accounts

The present list contains 512 species of liverworts belonging to 116 genera in 52 families and 19 species of hornworts belonging to six genera in three families. Lejeuneaceae with 121 spp. in 24 genera is the most species-rich family, accounting ca. 23% of the total number of the species. Genera with numerous species are *Frullania* (49 spp.), *Cololejeunea* (41 spp.), *Plagiochila* (36 spp.), *Radula* (26 spp.), *Lejeunea* (25 spp.), *Bazzania* (18 spp.), *Scapania* (18 spp.), *Solenostoma* (17 spp.), *Riccardia* (15 spp.), *Porella* (12 spp.) and *Heteroscyphus* (11 spp.). Forty-seven formerly reported species are considered dubious and excluded from this checklist. Twenty-five taxa, *Anastrophyllum minutum* var. *acuminatum*, *A. striolatum*, *Anthoceros fusiformis* var. *taiwanensis*, *Bazzania serrulatoides*, *B. spinosa*, *Calypogeia formosana*, *Chiloscyphus breviculus*, *Folioceros verruculosus*, *Frullania formosae*, *F. hiroshii*, *F. macrophylla*, *F. sphaerolobulata*, *F. taiheizana*, *F. yuzawana*, *Lejeunea barbata*, *L. chaishanensis*, *L. laii*, *Marchantia formosana*, *Plagiochila multipinnula*, *P. taiwanensis*, *Riccardia formosensis*, *R. submultifida*, *Schistochila minor*, *Targionia formosica* and *Tuyamaella molischii* var. *taiwanensis* are known only from Taiwan.

Wu *et al.* (2002) analyzed the similarity of the bryophyte floras between Taiwan and the Hengduan Mountains, southwest China, and they considered that almost all species common to those areas are tropical or subtropical. We employed Kroeber's percentage similarity (van Balgooy 1971) to evaluate the floristic affinities of liverworts and hornworts between different regions: Taiwan, Japan (Yamada & Iwatsuki 2006), the Philippines (Tan & Engel 1986), Fujian (Zhang *et al.* 2011) and Hainan Island (Shi 2008). The Kroeber's percentage of generic similarity of Taiwan and the Philippines is 73.5%, which is lower than the 75.3% with Hainan Island, the 80.0% with Fujian, and the 84.7% with Japan.

This conclusion reveals that the affinity of the liverwort and hornwort flora of Taiwan with Japan is closer than that with the Philippines, as concluded from the moss flora by Higuchi and Lin (2004). The lower Kroeber's percentage of generic similarity of Taiwan and Hainan plus the low number of species and genera of Hainan indicate that more detailed investigations on the liverwort and hornwort flora of Hainan are needed. The relatively high similarity of the liverwort and hornwort flora between Taiwan and Fujian might probably be explained by the fact that Taiwan was connected with Fujian in the mid-Pleistocene (Lai 2003).

Updated checklist of the liverworts and hornworts of Taiwan

The checklist was compiled according to the records in the published literature. The records given in Piippo (1990) are not repeated here. Species names with references are arranged in alphabetical order as in our earlier paper (Lai *et al.* 2008). The nomenclature mostly follows Crandall-Stotler *et al.* (2009), Frey *et al.* (2009), and recent revisions.

Liverworts (Marchantiophyta)

- Acrobolbus ciliatus* (Mitt.) Schiffn. — Piippo (1990), Bapna & Kachroo (2000b), Gao & Cao (2000), Lin (2000), Wu & Wang (2001), Gao & Lai (2003), Gao & Wu (2008).
- Acrolejeunea pusilla* (Steph.) Grolle & Gradst. — Piippo (1990), So & Zhu (1996b), He (1997), Lin (2000), Yang (2009).
- Acromastigum divaricatum* (Nees) A. Evans — Piippo (1990), Lin (2000), Gao (2003), Gao & Lai (2003).
- Anastrepta orcadensis* (Hook.) Schiffn. — Piippo (1990), Bapna & Kachroo (2000b), Gao & Cao (2000), Lin (2000), Gao & Lai (2003), Gao & Wu (2008).
- Anastrophyllum bidens* (Reinw. *et al.*) Steph. — Piippo (1990), Lin (2000), Gao & Wu (2008), Hsu & Huang (2010).
- A. michauxii* (F. Weber) H. Buch — Lin (2000), Gao & Wu (2008).
- A. minutum* (Schreb.) R.M. Schust. var. *acuminatum* (Horik.) T. Cao & J. Sun — Piippo (1990 as *A. acuminatum*), Lin (2000 as *A. acuminatum*), Gao & Wu (2008).
- A. minutum* (Schreb.) R.M. Schust. var. *minutum* — Piippo (1990), Lin (2000), Gao & Lai (2003), Gao & Wu (2008).
- A. striolatum* (Horik.) N. Kitag. — Piippo (1990), Lin (2000), Gao & Wu (2008).
- Aneura maxima* (Schiffn.) Steph. — Piippo (1990), Lin (2000).
- A. pinguis* (L.) Dumort. — Piippo (1990), Bapna & Kachroo (2000b), Gao & Cao (2000), Lin (2000), Gao & Lai (2003).
- Apomarsupella revoluta* (Nees) R.M. Schust. — Piippo (1990 as *Marsupella revoluta*), Bapna & Kachroo (2000b as *M. revoluta*), Gao & Cao (2000 as *M. revoluta*), Lin (2000 as *M. revoluta*), Gao & Wu (2008).
- A. rubida* (Mitt.) R.M. Schust. — Piippo (1990 as *Marsupella rubida*), Bapna & Kachroo (2000b as *M. rubida*), Lin (2000 as *M. rubida*), Gao & Wu (2008).
- Apotreubia nana* (S. Hatt. & Inoue) S. Hatt. & Mizut. — Piippo (1990), Bapna & Kachroo (2000b), Lin (2000), Gao & Lai (2003).
- Archilejeunea planiuscula* (Mitt.) Steph. — Stephani (1912 as *Brachiolejeunea miyakeana*), Horikawa (1934a as *B. miyakeana*).
- Asterella leptophylla* (Mont.) Grolle — Piippo (1990 as *A. yoshinagana*), Lin (2000 as *A. yoshinagana*), Wu & Wang (2001 as *A. yoshinagana*), Gao & Lai (2003 as *A. yoshinagana*), Long (2006).
- A. wallichiana* (Lehm. & Lindenb.) Grolle — Piippo (1990 as *A. monospiris*), Lin (2000 as *A. monospiris*), Long (2006).
- Barbilophozia attenuata* (Mart.) Loeske — Piippo (1990), Lin (2000), Gao & Lai (2003).
- B. barbata* (Schreb.) Loeske — Piippo (1990), Lin (2000), Gao & Lai (2003).
- B. hatcheri* (A. Evans) Loeske — Piippo (1990), Bapna & Kachroo (2000b), Lin (2000), Wu & Wang (2001).
- Bazzania albifolia* Horik. — Piippo (1990), Gao & Cao (2000), Lin (2000), Gao (2003), Gao & Lai (2003).
- B. angustifolia* Horik. — Piippo (1990), Gao & Cao (2000), Lin (2000), Gao (2003), Gao & Lai (2003), Hsu & Huang (2010).
- B. bidentula* (Steph.) Steph. ex Yasuda — Piippo (1990), Bapna & Kachroo (2000a), Lin (2000).
- B. conophylla* (Sande Lac.) Schiffn. — Piippo (1990), Gao & Cao (2000), Lin (2000), Gao (2003), Gao & Lai (2003).
- B. fauriana* (Steph.) S. Hatt. — Piippo (1990), Lin (2000), Gao & Lai (2003), Hsu & Huang (2010).
- B. imbricata* (Mitt.) S. Hatt. — Long & Grolle (1990), Piippo (1990), Lin (2000), Hsu & Huang (2010).
- B. japonica* (Sande Lac.) Lindb. — Piippo (1990), Lin (2000), Gao & Lai (2003).
- B. magna* Horik. — Piippo (1990), Lin (2000), Gao (2003).
- B. ovistipula* (Steph.) Abeyw. — Long & Grolle (1990), Piippo (1990), Lin (2000), Hsu & Huang (2010).
- B. praerupta* (Reinw. *et al.*) Trevis. — Piippo (1990), Gao & Cao (2000), Lin (2000), Hsu & Huang (2010).
- B. revoluta* (Steph.) N. Kitag. — Piippo (1990), Lin (2000), Gao (2003), Gao & Lai (2003).
- B. serrulatoides* Horik. — Piippo (1990), Lin (2000), Gao (2003), Gao & Lai (2003).
- B. sikkimensis* (Steph.) Herzog — Piippo (1990), Lai (1995), Lin (2000).
- B. spinosa* S. Okamura — Piippo (1990), Lin (2000).
- B. tricrenata* (Wahlenb.) Lindb. — Piippo (1990), Bapna &

- Kachroo (2000a), Gao & Cao (2000), Lin (2000), Gao (2003), Gao & Lai (2003).
- B. tridens* (Reinw. et al.) Trevis. var. *tridens* — Piippo (1990), Piippo (1990 as *B. oshimensis*), Lai (1995), Bapna & Kachroo (2000a), Lin (2000 as *B. oshimensis*), Gao & Lai (2003), Hsu & Huang (2010).
- B. tridens* (Reinw. et al.) Trevis. var. *assamica* (Steph.) Pócs — Lai (1990), Piippo (1990), Lin (2000).
- B. trilobata* (L.) Gray — Piippo (1990), Lin (2000).
- B. vittata* (Gottsche) Trevis. — Piippo (1990), Lin (2000), Lai (2002), Gao (2003), Gao & Lai (2003), Hsu & Huang (2010).
- Blasia pusilla* L. — Lai (1990), Piippo (1990), Bapna & Kachroo (2000b), Lin (2000), Gao & Lai (2003).
- Blepharostoma minus* Horik. — Gao & Cao (2000).
- B. trichophyllum* (L.) Dumort. — Lai (1990), Piippo (1990), Bapna & Kachroo (2000a), Gao & Cao (2000), Lin (2000), Gao & Lai (2003), Zhang & Wu (2006), Hsu & Huang (2010).
- Calycularia crispula* Mitt. — Piippo (1990), Gao & Cao (2000), Lin (2000), Gao & Lai (2003).
- Calypogeia aeruginosa* Mitt. — Yang & Lin (2009a).
- C. arguta* Nees & Mont. — Lai (1990), Piippo (1990), So & Zhu (1996b), Bapna & Kachroo (2000a), Lin (2000), Hsu & Huang (2010).
- C. azurea* Stotler & Crotz — Piippo (1990 as *C. trichomanis*), Lin (2000 as *C. trichomanis*).
- C. fissa* (L.) Raddi — Piippo (1990), Lin (2000), Gao (2003).
- C. formosana* Horik. — Piippo (1990), Lin (2000).
- C. neesiana* (C. Massal. & Carestia) Müll. Frib. — Piippo (1990), Lin (2000).
- C. tosana* (Steph.) Steph. — Lai (1990), Piippo (1990), Lin (2000), Zhu & So (2001), Zhang & Wu (2006).
- Caudolejeunea reniloba* (Gottsche) Steph. — Zhu & Lai (2003 as *C. recurvistipula*).
- Cephalozia bicuspidata* (L.) Dumort. — Piippo (1990).
- C. catenulata* (Huebener) Lindb. subsp. *nipponica* (S. Hatt.) Inoue — Piippo (1990), Lin (2000).
- C. gollanii* Steph. — Piippo (1990), Gao & Cao (2000), Lin (2000), Gao (2003), Long (2005).
- C. hamatiloba* Steph. — Piippo (1990 as *C. otaruensis*), Váňa (1988, 1993), Bapna & Kachroo (2000a), Lin (2000 as *C. otaruensis*), Long (2005), Hsu & Huang (2010 as *C. otaruensis*).
- Cephalozia kieri* (Austin) Douin — Piippo et al. (2002).
- C. microphylla* (Steph.) Douin — Huang & Lin (2009).
- Ceratolejeunea belangeriana* (Gottsche) Steph. — Piippo (1990), He (1997), Lin (2000), Zhu et al. (2005).
- Cheilelejeunea ceylanica* (Gottsche) R.M. Schust. & Kachroo — Piippo (1990), He (1997), Lin (2000), Zhu & So (2001), Zhu et al. (2002), Yang (2009).
- C. chenii* R.L. Zhu & M.L. So — Zhu et al. (1999), Lin (2000), Zhu & So (2001), Zhu et al. (2002), Yang (2009).
- C. eximia* (Ast & Tixier) R.L. Zhu & M.L. So — Zhu & So (2001), Zhu et al. (2002).
- C. falsinervis* (Sande Lac.) Kachroo & R.M. Schust. — Yang & Lin (2008a), Yang (2009).
- C. intertexta* (Lindenb.) Steph. — Piippo (1990), Lin (1990), He (1997), Gao & Cao (2000), Lin (2000), Zhu et al. (2002), Gao & Lai (2003), Yang (2009).
- C. obtusilobula* (S. Hatt.) S. Hatt. — Piippo (1990), He (1997), Lin (2000), Zhu & So (2001), Zhu et al. (2002), Yang (2009).
- C. kitagawae* W. Ye & R.L. Zhu — Piippo (1990 as *Leucolejeunea paroica*), Zhu & So (1999b as *L. paroica*), Lin (2000 as *L. paroica*), Yang (2009 as *L. paroica*).
- C. trapezia* (Nees) Kachroo & R.M. Schust. — Piippo (1990 as *C. imbricata* and *C. longiloba*), Zhu & Hu (1993 as *C. imbricata*), So & Zhu (1996a as *C. imbricata*), He (1997 as *C. longiloba*), Bapna & Kachroo (2000b as *C. imbricata*), Gao & Cao (2000 as *C. longiloba*), Lin (2000 as *Lejeunea imbricata* and *C. imbricata*), Zhu & So (2001 as *C. imbricata* and *C. longiloba*), Gao & Lai (2003 as *C. longiloba*), Yang (2009 as *C. imbricata*), Hsu & Huang (2010 as *C. imbricata*).
- C. trifaria* (Reinw. et al.) Mizut. — Piippo (1990), He (1997), Gao & Cao (2000), Lin (2000), Zhu & So (2001), Zhu et al. (2002), Gao & Lai (2003), Yang (2009).
- C. turgida* (Mitt.) W. Ye & R.L. Zhu — Grolle & Piippo (1990 as *Leucolejeunea turgida*), Wu & Yamada (1997 as *L. turgida*), Zhu & So (1999b as *L. turgida*), Gao & Lai (2003 as *L. turgida*), Zhu & Long (2003 as *L. turgida*), Yang (2009 as *L. turgida*).
- C. xanthocarpa* (Lehm. & Lindenb.) Malombe — Piippo (1990 as *Leucolejeunea xanthocarpa*), He (1997 as *L. xanthocarpa*), Zhu & So (1999b as *L. xanthocarpa*), Bapna & Kachroo (2000b as *L. xanthocarpa*), Lin (2000 as *L. xanthocarpa*), Zhu & So (2001 as *L. xanthocarpa*), Yang (2009 as *L. xanthocarpa*).
- Chiloscyphus breviculus* B.Y. Yang & W.C. Lee — Piippo (1990), Lin (2000).
- C. ciliolatus* (Nees) J.J. Engel & R.M. Schust. — Piippo (1990), Lin (2000), Gao & Wu (2008).
- C. costatus* (Nees) J.J. Engel & R.M. Schust. — Piippo (1990), Piippo (1996), Lin (2000), Gao & Wu (2008).
- C. engelii* R.L. Zhu & M.J. Lai, nom. nov. Basionym: *Lophocolea javanica* Schiffn., Denkschr. Kais. Akad. Wiss. Wien Math.-Nat. Clas. 70: 195. 1900. (non *Chiloscyphus javanicus* Steph., Sp. Hepat. 6: 308. 1922). *Chiloscyphus schiffneri* J.J. Engel & R.M. Schust., Nova Hedwigia 39: 422. 1985[1984], nom. illeg. (non *Chiloscyphus schiffneri* S.W. Arnell, Österr. Akad. Wiss., Math.-Naturwiss. Kl. 111: 71. 1964). — Gao & Wu (2008 as *Chiloscyphus schiffneri*).
- C. polyanthos* (L.) Corda var. *polyanthos* — Piippo (1990), Bapna & Kachroo (2000b), Gao & Cao (2000), Lin (2000), Gao & Lai (2003).
- C. polyanthos* (L.) Corda var. *fragilis* (Roth) K. Müll. — Piippo (1990), Lin (2000).
- C. sikkimensis* (Steph.) J.J. Engel & R.M. Schust. — Kitagawa (1979 as *Lophocolea sikkimensis*), Piippo (1990), Bapna & Kachroo (2000b), Lin (2000), Gao et al. (2004 as *Heteroscyphus acutangulus*), Gao & Wu (2008 as *H. acutangulus*), Wu & Gao (2008).
- Cololejeunea aequabilis* (Sande Lac.) Schiffn. — Zhu et al. (1999 as *C. yulensis*), Gao & Cao (2000 as *C. yulensis*), Zhu & So (2001 as *C. yulensis*).
- C. angustiflora* (Steph.) Mizut. — Zhu & So (2000b as *C. mackeeana*), Zhu & So (2001 as *C. mackeeana*), Zhu &

- So (2002), Yang (2009 as *C. mackeeana*).
- C. appressa* (A. Evans) Benedix — Piippo (1990), Zhu (1995), He (1997), Bapna & Kachroo (2000b), Gao & Cao (2000), Lin (2000), Zhu & So (2001), Gao & Lai (2003), Zhu & Lai (2003), Yang (2009).
- C. ceratilibula* (P.C. Chen) R.M. Schust. — Piippo (1990 as *C. reinecheana*), He (1997 as *C. reinecheana*), Zhu & So (1998b), Bapna & Kachroo (2000b as *C. formosana*), Gao & Cao (2000), Lin (2000), Zhu & So (2001), Yang (2009).
- C. denticulata* (Horik.) S. Hatt. — Piippo (1990), Zhu & Hu (1993), He (1997), Gao & Cao (2000), Lin (2000), Zhu & So (2001), Gao & Lai (2003), Yang (2009), Hsu & Huang (2010).
- C. diaphana* A. Evans — Piippo (1990 as *Aphanolejeunea truncatifolia*), He (1997 as *A. truncatifolia*), Bapna & Kachroo (2000b as *C. truncatifolia*), Gao & Cao (2000 as *A. truncatifolia*), Lin (2000 as *A. truncatifolia*), Zhu & So (2001 as *A. truncatifolia*), Zhu & Long (2003 as *A. truncatifolia*), Yang (2009 as *A. truncatifolia*).
- C. dozyana* (Sande Lac.) Schiffn. — Zhu & So (1998a), Zhu & So (1999a), Gao & Cao (2000), Lin (2000), Zhu & So (2001), Zhu & Long (2003), Yang (2009).
- C. falcata* (Horik.) Benedix — Piippo (1990), Lin (2000), Zhu & So (2001), Yang (2009).
- C. floccosa* (Lehm. & Lindenb.) Schiffn. — Piippo (1990), He (1997), Gao & Cao (2000), Lin (2000), Zhu & So (2001), Gao & Lai (2003), Yang (2009).
- C. gottschei* (Steph.) Pandé *et al.* — Zhu & Lai (2003).
- C. grossepapillosa* (Horik.) N. Kitag. — Piippo (1990 as *Aphanolejeunea grossepapillosa*), He (1997 as *A. grossepapillosa*), Gao & Cao (2000 as *A. grossepapillosa*), Lin (2000 as *A. grossepapillosa*), Zhu & So (2001 as *A. grossepapillosa*), Yang (2009 as *A. grossepapillosa*).
- C. hainanensis* R.L. Zhu — Zhu & So (2001), Gao & Lai (2003), Yang (2009).
- C. haskariana* (Lehm.) Schiffn. — Piippo (1990), Zhu & Hu (1993), He (1997), Gao & Cao (2000), Lin (2000), Zhu & So (2001), Gao & Lai (2003), Yang (2009).
- C. inflata* Steph. — Piippo (1990 as *C. oshimensis*), Zhu & Hu (1993 as *C. oshimensis*), He (1997 as *C. oshimensis*), Gao & Cao (2000), Lin (2000 as *C. oshimensis*), Zhu & So (2001), Gao & Lai (2003), Zhu & Lai (2003), Yang (2009).
- C. lanciloba* Steph. — Piippo (1990), Zhu & Hu (1993), He (1997), Lin (2000), Gao & Lai (2003), Zhu & So (2001), Zhu & Lai (2003), Yang (2009).
- C. latilobula* (Herzog) Tixier — Piippo (1990), Lin & Yang (1992), Zhu & Hu (1993), He (1997), Lin (2000), Yang (2009).
- C. longifolia* (Mitt.) Benedix *ex* Mizut. — Piippo (1990), He (1997), Bapna & Kachroo (2000b), Lin (2000), Zhu & So (2001), Zhu & Long (2003), Yang (2009).
- C. macounii* (Spruce *ex* Underw.) A. Evans — Piippo (1990), Zhu (1995), He (1997), Lin (2000), Zhu & So (2001), Yang (2009).
- C. magnilobula* (Horik.) S. Hatt. — Piippo (1990), Zhu (1995), He (1997), Lin (2000), Zhu & So (2001), Yang (2009).
- C. magnistyla* (Horik.) Mizut. — Piippo (1990), He (1997), Lin (2000), Zhu & So (2001), Yang (2009).
- C. minutissima* (Sm.) Schiffn. — Piippo (1990), He (1997), Lin (2000), Yang (2009).
- C. obliqua* (Nees & Mont.) Schiffn. — Piippo (1990 as *C. scabriflora*), He (1997 as *C. scabriflora*), Lin (2000 as *C. scabriflora*), Zhu & So (2001), Yang (2009).
- C. ocellata* (Horik.) Benedix — Piippo (1990), Zhu & Hu (1993), Zhu (1995), He (1997), Bapna & Kachroo (2000b), Gao & Cao (2000), Lin (2000), Zhu & So (2001), Gao & Lai (2003), Yang (2009).
- C. ocelloides* (Horik.) Mizut. — Piippo (1990), Zhu & Hu (1993), Zhu (1995), He (1997), Gao & Cao (2000), Lin (2000), Zhu & So (2001), Gao & Lai (2003), Yang (2009).
- C. peraffinis* (Schiffn.) Schiffn. — Piippo (1990), Piippo (1990 as *Taeniolejeunea peraffinis* fo. *corticola*, 1990 as *C. magnipapillosa*), Zhu & Hu (1993 as *C. magnipapillosa*), He (1997 as *C. magnipapillosa*), Bapna & Kachroo (2000b), Gao & Cao (2000), Lin (2000 as *C. magnipapillosa*), Lin (2000 as *C. peraffinis* fo. *corticola*), Zhu & So (2001), Gao & Lai (2003), Yang (2009).
- C. planissima* (Mitt.) Abeyw. — Piippo (1990 as *C. latilobula*), Zhu & Hu (1993), He (1997), Bapna & Kachroo (2000b), Gao & Cao (2000), Lin (2000), Zhu & So (2001), Gao & Lai (2003), Yang (2009).
- C. pseudofloccosa* (Horik.) Benedix — Piippo (1990), Zhu & Hu (1993), Zhu (1995), He (1997), Bapna & Kachroo (2000b), Lin (2000), Zhu & So (2001), Yang (2009).
- C. raduliloba* Steph. — Piippo (1990), Zhu (1995), He (1997), Lin (2000), Zhu & So (2001), Yang (2009).
- C. rotundilobula* (P.C. Wu & P.J. Lin) Piippo — Zhu & So (2000b), Zhu & So (2001), Yang (2009).
- C. schmidtii* Steph. — Piippo (1990), He (1997), Lin (2000), Zhu & So (2001), Yang (2009).
- C. schwabei* Herzog — Piippo (1990), Lin & Yang (1992), Zhu (1995), He (1997), Zhu & So (2001), Yang (2009).
- C. shikokiana* (Horik.) S. Hatt. — Piippo (1990), He (1997), Lin (2000), Yang (2009).
- C. sigmoidea* Ast & Tixier — Zhu & So (1998a), Lin (2000), Zhu & So (2001), Yang (2009).
- C. sintenisii* (Steph.) Pócs — Zhu & So (2001 as *Aphanolejeunea angustiloba*), Yang (2009 as *A. angustiloba*).
- C. spinosa* (Horik.) Pandé & Misra — Piippo (1990), He (1997), Bapna & Kachroo (2000b), Lin (2000), Zhu & So (2001), Zhu & Lai (2003), Yang (2009).
- C. stylosa* (Steph.) A. Evans — Piippo (1990), He (1997), Lin (2000), Zhu & So (2001), Yang (2009).
- C. subocelloides* Mizut. — Zhu & So (2001).
- C. tenella* Benedix — Zhu & So (1999a), Zhu & So (2001), Gao & Lai (2003), Yang (2009).
- C. trichomanis* (Gottsche) Steph. — Piippo (1990 as *C. goebelii*), He (1997 as *C. goebelii*), Bapna & Kachroo (2000b as *C. goebelii*), Gao & Cao (2000 as *C. goebelii*), Lin (2000 as *C. goebelii*), Zhu & So (2000c as *C. goebelii*), Zhu & So (2001 as *C. goebelii*), Gao & Lai (2003 as *C. goebelii*), Zhu & Lai (2003 as *C. goebelii*), Zhang & Wu (2006 as *C. goebelii*), Yang (2009 as *C. goebelii*), Hsu & Huang (2010 as *C. goebelii*).
- C. verrucosa* Steph. — Piippo (1990), He (1997), Lin (2000),

- Zhu & So (2001), Yang (2009).
- C. yakusimensis* (S. Hatt.) Mizut. — Zhu & Lai (2003).
- Colura acroloba* (Mont. ex Steph.) Ast — Zhu & So (2001), Yang (2009).
- C. inuii* Horik. — Piippo (1990), He (1997), Lin (2000), Zhu & So (2001), Yang (2009).
- C. tenuicornis* (A. Evans) Steph. — Piippo (1990), Zhu & Hu (1993), He (1997), Bapna & Kachroo (2000b), Gao & Cao (2000), Lin (2000), Zhu & So (2001), Gao & Lai (2003), Yang (2009), Hsu & Huang (2010).
- Conocephalum conicum* (L.) Dumort. — Li (1990), Piippo (1990), Lin (2000), Hsu & Huang (2010).
- C. japonicum* (Thunb.) Grolle — Lai (1990), Piippo (1990), Bapna & Kachroo (2000b), Gao & Cao (2000), Lin (2000), Gao & Lai (2003).
- Cryptomitrium tenerum* (Hook. ex Kunth) Austin ex Underw. — Piippo (1990 as *Mannia subpilosa*), Wei & Wu (1991 as *M. subpilosa*), Lin (2000 as *M. subpilosa*), Katagiri & Deguchi (2011).
- Cyathodium smaragdinum* Schiffn. ex Keissl. — Piippo (1990), Lin (2000), Gao (2003).
- Cylindrocolea recurvifolia* (Steph.) Inoue — Piippo (1990), Gao & Cao (2000), Lin (2000), Gao (2003), Huang & Lin (2009).
- Denotarisia linguifolia* (De Not.) Grolle — Piippo (1990), Lin (2000), Lin (2000 as *Jamesoniella pulchra*), Gao & Wu (2008).
- Diplasiolejeunea cavifolia* Steph. — Piippo (1990), He (1997), Lin (2000), Zhu & So (2001), Yang (2009).
- Diplophyllum albicans* (L.) Dumort. — Piippo (1990), Lin (2000), Hsu & Huang (2010).
- D. andrewsii* A. Evans — Piippo (1990), Lin (2000).
- D. obtusifolium* (Hook.) Dumort. — Piippo (1990), Wu & Wang (2001).
- D. serrulatum* (Müll. Frib.) Steph. — Piippo (1990), Lin (2000), Gao & Wu (2008).
- D. taxifolium* (Wahlenb.) Dumort. — Piippo (1990), Lin (2000), Gao & Lai (2003).
- Drepanolejeunea angustifolia* (Mitt.) Grolle — Piippo (1990), He (1997), Bapna & Kachroo (2000b), Lin (2000), Zhu & So (2001), Zhu & Long (2003), Yang (2009).
- D. commutata* Grolle & R.L. Zhu — Zhu & So (2001), Yang (2009).
- D. dactylophora* (Nees et al.) Schiffn. — Piippo (1990), He (1997), Lin (2000), Zhu & So (2001), Yang (2009).
- D. erecta* (Steph.) Mizut. — Piippo (1990), Zhu & Hu (1993), He (1997), Lin (2000), Zhu & So (2001), Zhu & Long (2003), Yang (2009).
- D. foliicola* Horik. — Piippo (1990 as *Leptolejeunea yangii*), Zhu & Hu (1993 as *L. yangii*), He (1997 as *L. yangii*), Bapna & Kachroo (2000b as *Rhaphidolejeunea foliicola*), Gao & Cao (2000 as *R. foliicola*), Grolle & Zhu (2000), Lin (2000 as *R. foliicola*), Zhu & So (2001), Zhu & Lai (2003), Yang (2009), Hsu & Huang (2010 as *L. yangii*).
- D. pentadactyla* (Mont.) Steph. — Piippo (1990), He (1997), Gao & Cao (2000), Lin (2000), Wu & Wang (2001), Zhu & So (2001), Yang (2009).
- D. ternatensis* (Gottsche) Schiffn. — Piippo (1990), He (1997), Bapna & Kachroo (2000b), Lin (2000), Zhu & So (2001), Yang (2009).
- D. vesiculosa* (Mitt.) Steph. — Piippo (1990), Lin et al. (1992), He (1997), Gao & Cao (2000), Lin (2000), Zhu & So (2001), Gao & Lai (2003), Yang (2009).
- D. yunnanensis* (P.C. Chen) Grolle & R.L. Zhu — Piippo (1990 as *Rhaphidolejeunea yunnanensis*), Zhu & So (2001), Gao & Lai (2003 as *R. yunnanensis*), Yang (2009).
- Dumortiera hirsuta* (Sw.) Nees — Lai (1990), Piippo (1990), Lin (2000), Hsu & Huang (2010).
- Eocalypogeia quelpaertensis* (S. Hatt. & Inoue) R.M. Schust. — Lin (2000 as *Metacalypogeia quelpaertensis*).
- Fossombronina caledonica* Steph. — Huang et al. (2009).
- F. japonica* Schiffn. — Piippo (1990 as *F. australi-nipponica*), Lin 2000 as *F. australi-nipponica*), Kraysesky et al. (2005), Huang et al. (2009).
- F. pusilla* (L.) Nees — Piippo (1990), Lin (2000), Gao & Lai (2003), Kraysesky et al. (2005), Huang et al. (2009).
- Frullania acutiloba* Mitt. — Lin & Chen (1997), Lin (2000).
- F. amamiensis* Kamim. — Piippo (1990 as *F. caduca*), Lin (2000 as *F. caduca*).
- F. ampliocrania* Steph. — Piippo (1990), Lin (2000), Hsu & Huang (2010).
- F. aoshimensis* Horik. — Piippo (1990), Lin (2000), Zhu & So (2001).
- F. arecae* (Spreng.) Gottsche — Piippo (1990), Yuzawa (1991), Gao & Cao (2000), Lin (2000), Gao & Lai (2003).
- F. berthoumieuui* Steph. — Piippo (1990).
- F. bonincola* S. Hatt. — Lin & Chen (1997), Lin (2000).
- F. davurica* Hampe — Piippo (1990), Gao & Cao (2000), Lin & Chen (1997), Lin (2000), Gao & Lai (2003), Ahonen (2004), Hsu & Huang (2010 as *F. jackii* subsp. *japonica*).
- F. davurica* Hampe var. *chichibuensis* (Kamim.) S. Hatt. — Piippo (1990), Lin (2000), Hsu & Huang (2010 as *F. jackii* subsp. *japonica* var. *chichibuensis*).
- F. densiloba* Steph. ex A. Evans — Piippo (1990), Lin & Chen (1997), Lin (2000).
- F. dilatata* (L.) Dumort. — Piippo (1990).
- F. diversitexta* Steph. — Piippo (1990), Lin (2000).
- F. ericoides* (Nees) Mont. — Piippo (1990), Bapna & Kachroo (2000b), Gao & Cao (2000), Lin & Chen (1997), Lin (2000), Gao & Lai (2003).
- F. formosae* Steph. — Piippo (1990), Lin (2000).
- F. gaudichaudii* (Nees & Mont.) Nees & Mont. — Piippo (1990), Bapna & Kachroo (2000b), Gao & Cao (2000), Lin (2000).
- F. giraldiana* C. Massal. — Lin & Chen (1997), Lin (2000).
- F. gracilis* (Reinw. et al.) Dumort. — Lin (2000).
- F. hamatiloba* Steph. — Piippo (1990), Gao & Cao (2000), Lin (2000), Gao & Lai (2003).
- F. hiroshii* S. Hatt. — Piippo (1990), Lin & Chen (1997), Lin (2000).
- F. hypoleuca* Nees — Piippo (1990), Lin (2000), Gao & Cao (2000), Wu & Wang (2001).
- F. inflata* Gottsche — Gao & Cao (2000).
- F. inflexa* Mitt. — Gao & Cao (2000), Lin (2000), Gao & Lai (2003).

- F. inouei* S. Hatt. — Piippo (1990), Gao & Cao (2000), Lin (2000), Gao & Lai (2003).
- F. jackii* Gottsche — Piippo (1990 as *F. davurica* subsp. *jackii*), Gao & Cao (2000 as *F. davurica* subsp. *jackii*).
- F. kagoshimensis* Steph. — Piippo (1990), Lin & Chen (1997), Lin (2000).
- F. macrophylla* S. Hatt. — Piippo (1990), Lin (2000).
- F. meyeniana* Lindenb. — Piippo (1990), Lin & Chen (1997), Lin (2000).
- F. moniliata* (Reinw. *et al.*) Mont. — Li (1990 as *F. tamarisci* subsp. *moniliata*), Piippo (1990), Bapna & Kachroo (2000b as *F. tamarisci* subsp. *obscura* and *F. tamarisci* subsp. *obscura* var. *balansae*), Gao & Cao (2000), Lin & Chen (1997), Lin (2000), Zhu & So (2001), Gao & Lai (2003), Hsu & Huang (2010).
- F. monocera* (Hook. f. & Taylor) Taylor var. *depauperata* S. Hatt. — Piippo (1990), Lin (2000).
- F. monocera* (Hook. f. & Taylor) Taylor var. *monocera* — Piippo (1990), Bapna & Kachroo (2000b), Lin & Chen (1997), Lin (2000), Ahonen (2004).
- F. monocera* (Hook. f. & Taylor) Taylor var. *schiffneri* (Verd.) S. Hatt. — Piippo (1990 as *F. acutiloba* var. *schiffneri*).
- F. motoyana* Steph. — Piippo (1990), Gao & Cao (2000), Lin & Chen (1997), Lin (2000).
- F. muscicola* Steph. — Piippo (1990), Bapna & Kachroo (2000b), Gao & Cao (2000), Lin & Chen (1997), Lin (2000), Zhu & So (2001), Gao & Lai (2003), Hsu & Huang (2010 as *F. pedicellata*).
- F. nepalensis* (Spreng.) Lehm. & Lindenb. — Piippo (1990), Bapna & Kachroo (2000b), Gao & Cao (2000), Lin & Chen (1997), Lin (2000), Gao & Lai (2003), Hsu & Huang (2010).
- F. orientalis* Sande Lac. — Piippo (1990), Bapna & Kachroo (2000b), Gao & Cao (2000), Lin (2000), Gao & Lai (2003).
- F. osumiensis* (S. Hatt.) S. Hatt. — Piippo (1990), Piippo (1990 as *F. kagoshimensis* var. *minor*), Lin & Chen (1997), Lin (2000), Lin (2000 as *F. kagoshimensis* var. *minor*).
- F. pariharii* S. Hatt. & Thaitong — Lin & Chen (1997), Lin (2000).
- F. parvistipula* Steph. — Lin & Chen (1997), Lin (2000).
- F. ramuligera* (Nees) Mont. — Piippo (1990), Gao & Cao (2000), Lin (2000), Gao & Lai (2003).
- F. riojaneirensis* (Raddi) Ångstr. — Piippo (1990), Piippo (1990 as *F. galeata*), Yuzawa (1991), Gao & Cao (2000), Lin (2000), Gao & Lai (2003).
- F. sackawana* Steph. — Lin & Chen (1997), Lin (2000).
- F. schensiana* C. Massal. — Piippo (1990), Gao & Cao (2000), Lin (2000), Gao & Lai (2003).
- F. serrata* Gottsche — Piippo (1990), Gao & Cao (2000), Lin & Chen (1997), Lin (2000), Gao & Lai (2003).
- F. sphaerolobulata* S.H. Lin — Lin & Chen (1997), Lin (2000).
- F. taiheizana* Horik. — Piippo (1990), Lin & Chen (1997), Lin (2000).
- F. tamarisci* (L.) Dumort. — Piippo (1990), Gao & Cao (2000), Lin (2000), Gao & Lai (2003), Ahonen (2004), Hsu & Huang (2010).
- F. tamsuina* Steph. — Piippo (1990), Lin (2000).
- F. ternatensis* Gottsche var. *non-appendiculata* S. Hatt. — Piippo (1990), Lin (2000).
- F. ternatensis* Gottsche var. *ternatensis* — Piippo (1990), Lin & Chen (1997), Lin (2000), Hsu & Huang (2010).
- F. trichodes* Mitt. — Piippo (1990), Lin & Chen (1997), Lin (2000).
- F. valida* Steph. — Lin & Chen (1997), Lin (2000).
- F. yuennanensis* Steph. — Piippo (1990), Gao & Cao (2000), Gao & Lai (2003), Lin & Chen (1997), Lin (2000).
- F. yuzawana* S. Hatt. — Piippo (1990), Lin & Chen (1997), Lin (2000).
- Gottschelia schizopleura* (Spruce) Grolle — Piippo (1990), Lin (2000), Gao & Wu (2008).
- Gymnomitrium concinnatum* (Lightf.) Corda — Piippo (1990), Gao & Cao (2000), Lin (2000), Gao & Lai (2003), Gao & Wu (2008).
- Haplomitrium blumii* (Nees) R.M. Schust. — Piippo (1990), Lin (2000), Gao (2003), Lai (2007).
- H. mnioides* (Lindb.) R.M. Schust. — Lai (1990), Piippo (1990), Lai (1995), Lin (2000), Zhang & Wu (2006), Lai (2007), Hsu & Huang (2010).
- Harpalejeunea filicuspis* (Steph.) Mizut. — Piippo (1990), He (1997), Lin (2000).
- Herbertus aduncus* (Dicks.) Gray — Piippo (1990), Gao & Cao (2000), Lin (2000), Gao (2003), Gao & Lai (2003), Juslén (2004), Juslén (2006), Hsu & Huang (2010).
- H. dicranus* (Taylor *ex* Gottsche *et al.*) Trevis. — Piippo (1990), Piippo (1990 as *H. giraladianus* and *H. longifissus*), Piippo (1990 as *H. sakuraii*), Hong *et al.* (1993 as *H. sakuraii* subsp. *sakuraii*), Bapna & Kachroo (2000a as *H. giraladianus* and *H. longifolius*), Lin (2000 as *H. giraladianus*, *H. longifissus* and *H. sakuraii*), Gao (2003), Juslén (2006), Hsu & Huang (2010), Hsu & Huang (2010 as *H. sakuraii* and *H. pinnatus*).
- H. kurzii* (Steph.) R.S. Chopra — Piippo (1990), Long & Grolle (1990), Bapna & Kachroo (2000a), Lin (2000).
- H. longispinus* J.B. Jack & Steph. — Juslén (2006).
- Heteroscyphus argutus* (Reinw. *et al.*) Schiffn. var. *argutus* — Lai (1990), Piippo (1990), Gao & Cao (2000), Lin (2000), Zhu & So (2001), Gao & Lai (2003), Zhang & Wu (2006), Gao & Wu (2008), Hsu & Huang (2010).
- H. argutus* (Reinw. *et al.*) Schiffn. var. *brevidens* (Schiffn.) Herzog & Nog. — Piippo (1990), Lin (2000).
- H. aselliformis* (Reinw. *et al.*) Schiffn. — Piippo (1990), Lin (2000), Gao & Wu (2008).
- H. coalitus* (Hook.) Schiffn. — Lai (1990 as *H. bescherellei*), Piippo (1990), Lai (1995 as *H. bescherellei*), Gao & Cao (2000), Lin (2000), Zhu & So (2001), Gao & Lai (2003), Gao & Wu (2008), Hsu & Huang (2010 as *H. bescherellei*).
- H. lophocoleoides* S. Hatt. — Piippo (1990), Gao & Cao (2000), Lin (2000), Gao & Wu (2008).
- H. planus* (Mitt.) Schiffn. — Lai (1990), Piippo (1990), Bapna & Kachroo (2000b), Gao & Cao (2000), Lin (2000), Gao & Lai (2003), Gao & Wu (2008), Hsu & Huang (2010).
- H. saccogynoides* Herzog — Piippo (1990), Lin (2000), Gao & Wu (2008).
- H. splendens* (Lehm. & Lindenb.) Grolle — Piippo (1990).
- H. tener* (Steph.) Schiffn. — Piippo (1990), Bapna &

- Kachroo (2000b), Lin (2000), Gao & Lai (2003), Hsu & Huang (2010).
- H. tridentatus* (Sande Lac.) Grolle — Gao et al. (2004), Gao & Wu (2008).
- H. turgidus* (Schiffn.) Schiffn. — Gao et al. (2004).
- H. zollingeri* (Gottsche) Schiffn. — Piippo (1990), Gao & Cao (2000), Lin (2000), Gao & Lai (2003), Gao & Wu (2008).
- Isotachis japonica* Steph. — Piippo (1990), Gao & Cao (2000), Lin (2000), Gao & Lai (2003), Gao et al. (2003 “2002”), Gao & Wu (2008), Hsu & Huang (2010).
- Jackiella javanica* Schiffn. var. *cavifolia* Schiffn. — Piippo (1990), Bapna & Kachroo (2000a), Lin (2000).
- J. javanica* Schiffn. var. *javanica* — Piippo (1990), So & Zhu (1996b), Gao & Cao (2000), Lin (2000), Gao & Lai (2003), Zhang & Wu (2006).
- Jubula hutchinsiae* (Hook.) Dumort. — Ahonen (2004), Wilson et al. (2004), Katagiri et al. (2010).
- J. javanica* Steph. — Piippo (1990 as *J. hutchinsiae* subsp. *javanica*), Bapna & Kachroo (2000b), Gao & Cao (2000 as *J. hutchinsiae* subsp. *javanica*), Lin (2000 as *J. hutchinsiae* subsp. *javanica*), Gao & Lai (2003 as *J. hutchinsiae* subsp. *javanica*), Katagiri et al. (2010), Hsu & Huang (2010).
- J. japonica* Steph. — Piippo (1990), Lin (2000), Zhu & So (2001), Gao & Lai (2003), Katagiri et al. (2010).
- Jungermannia atrovirens* Dumort. — Piippo (1990), Lin (2000).
- J. exsertifolia* Steph. — Piippo (1990 as *J. exsertifolia* subsp. *cordifolia*), Bapna & Kachroo (2000a), Lin (2000 as *J. exsertifolia* subsp. *cordifolia*).
- Kurzia abietinella* (Herzog) Grolle — Wu & Yamada (2000).
- K. borneensis* Mizut. — Wu & Yamada (2000).
- K. gonyotricha* (Sande Lac.) Grolle — Piippo (1990), Lin (2000).
- K. makinoana* (Steph.) Grolle — Piippo (1990), Bapna & Kachroo (2000a), Lin (2000), Hsu & Huang (2010).
- K. pauciflora* (Dicks.) Grolle — Piippo (1990), Bapna & Kachroo (2000a), Gao & Lai (2003), Hsu & Huang (2010 as *Lepidozia setacea*).
- Leiocolea morrisoncola* (Horik.) Furuki & Mizut. — Gao & Cao (2000 as *Lophozia morrisoncola*), Lin (2000 as *L. morrisoncola*), Bakalin (2003 as *Hattoriella morrisoncola*), Gao & Wu (2008 as *L. morrisoncola*).
- Lejeunea anisophylla* Mont. — Herzog & Noguchi (1955 as *L. subigiensis*), Piippo (1990 as *L. catanduana*), He (1997 as *L. catanduana*), Lin (2000 as *L. catanduana*), Zhu & So (2001), Yang (2009), Hsu & Huang (2010 as *L. bornensis*).
- Lejeunea apiculata* Sande Lac. — Tixier (1971 as *Stenolejeunea apiculata*), Piippo (1990 as *S. apiculata*, He (1997 as *S. apiculata*), Lin (2000 as *S. apiculata*), Zhu & So (2001 as *S. apiculata*), Yang (2009 as *P. unguata*).
- L. aquatica* Horik. — Piippo (1990), He (1997), Lin (2000), Yang (2009).
- Lejeunea barbata*** (Herzog) R.L. Zhu & M.J. Lai, *comb. nova*. Basionym: *Rectolejeunea barbata* Herzog in Herzog & Noguchi, J. Hattori Bot. Lab. 14: 49. 1955. The type specimen of *R. barbata* belongs to *Lejeunea* rather than *Rectolejeunea*. — Piippo (1990 as *Rectolejeunea barbata*), He (1997 as *R. barbata*), Lin (2000 as *R. barbata*).
- L. bidentula* Herzog — Yang & Lin (2008b), Yang (2009).
- L. chaishanensis* S.H. Lin — Lin & Yang (1992), Yang (2009).
- L. cocoes* Mitt. — Piippo (1990 as *L. proliferans*), He (1997 as *L. proliferans*), So & Zhu (1998), Zhu & So (1999a), Gao & Cao (2000), Lin (2000 as *L. proliferans*), Zhu & So (2001), Gao & Lai (2003), Yang (2009).
- L. compacta* (Steph.) Steph. — Piippo (1990), He (1997), Zhu & So (1999a), Lin (2000), Gao & Lai (2003), Yang (2009).
- L. curviloba* Steph. — Zhu & So (2001), Zhu & Long (2003).
- L. discreta* Lindenb. — Piippo (1990), He (1997), Gao & Cao (2000), Lin (2000), Zhu & So (2001), Yang (2009), Hsu & Huang (2010 as *L. vaginata*).
- L. eifrigii* Mizut. — Lin (2000), Yang (2009).
- L. exilis* (Reinw. et al.) Grolle — Piippo (1990 as *Drepanolejeunea subacuta*), He (1997 as *D. subacuta*), Lin (2000 as *D. subacuta*), Zhu & Grolle (2003), Yang (2009).
- L. flava* (Sw.) Nees — Lai (1990), Piippo (1990), Zhu & Hu (1993), He (1997), Bapna & Kachroo (2000b), Lin (2000), Zhu & So (2000b), Zhu & So (2001), Zhu & Lai (2003), Yang (2009), Hsu & Huang (2010).
- L. japonica* Mitt. — Piippo (1990), He (1997), Lin (2000), So (2001), Yang (2009), Hsu & Huang (2010).
- L. laii* R.L. Zhu — Piippo (1990 as *L. ramulosa*), He (1997 as *Microlejeunea ramulosa*), Lin (2000 as *L. ramulosa*), Wang & Zhu (2008), Yang (2009).
- L. leratii* (Steph.) Mizut. — Piippo (1990), He (1997), Lin (2000), Yang (2009).
- Lejeunea luzonensis*** (Steph.) R.L. Zhu & M.J. Lai, *comb. nova*. Basionym: *Taxilejeunea luzonensis* Steph., Hedwigia 35: 134. 1896. The examination of the type material of *T. luzonensis* revealed the taxon is better placed in *Lejeunea*. — Piippo (1990 as *Taxilejeunea luzonensis*), He (1997 as *T. luzonensis*), Lin (2000 as *T. luzonensis*).
- L. obscura* Mitt. — Herzog & Noguchi (1955 as *T. subcompressiuscula*), Piippo (1990 as *T. subcompressiuscula*), He (1997 *T. subcompressiuscula*), Lin (2000 as *T. subcompressiuscula*).
- L. parva* (S. Hatt.) Mizut. — Piippo (1990), Zhu & Hu (1993), He (1997), Lin (2000), Zhu & So (2001), Yang (2009).
- L. punctiformis* Taylor — Lai & Wang-Yang (1976 as *Microlejeunea punctiformis*), Kuo & Chiang (1988 as *M. punctiformis*), Bapna & Kachroo (2000b), Gao & Cao (2000), Zhu & So (2001), Gao & Lai (2003), Zhu & Lai (2003).
- L. riparia* Mitt. — Lin (2000).
- L. sordida* (Nees) Nees — Yang (2009), Yang & Lin (2009b).
- L. subacuta* Mitt. — He (1997).
- L. ulicina* (Taylor) Gottsche et al. — Lai (1990), Piippo (1990), Piippo (1990 as *L. lunulatiloba*), Zhu & Hu (1993), He (1997 as *Microlejeunea lunulatiloba* and *M. ulicina*), Bapna & Kachroo (2000b), Lin (2000), Lin (2000 as *L. lunulatiloba*), Yang (2009), Yang (2009 as *L. lunulatiloba*).
- L. wightii* Lindenb. — Piippo (1990), He (1997), Zhu & So (1999a), Bapna & Kachroo (2000b), Gao & Cao (2000),

- Lin (2000), Yang (2009).
- Lepicolea yakusimensis* (S. Hatt.) S. Hatt. — Horikawa (1934a as *L. scolopendra*), Piippo (1990), Lin (2000), Gao (2003 as *L. scolopendra*), Gao & Lai (2003), Lai (2007), Hsu & Huang (2010).
- Lepidolejeunea bidentula* (Steph.) R.M. Schust. — Piippo (1990), He (1997), Lin (2000), Zhu & So (2001), Yang (2009).
- Lepidozia fauriana* Steph. — Piippo (1990), Lai (1995), Lin (2000), Paul *et al.* (2001), Gao & Lai (2003), Hsu & Huang (2010).
- L. filamentosa* (Lehm. & Lindenb.) Gottsche *et al.* — Piippo (1990), Lin (2000), Hsu & Huang (2010).
- L. pearsonii* Spruce — Hsu & Huang (2010).
- L. reptans* (L.) Dumort. — Piippo (1990), Bapna & Kachroo (2000a), Lin (2000), Gao & Bai (2002), Gao & Lai (2003).
- L. subtransversa* Steph. — Piippo (1990), Lin (2000).
- L. trichodes* (Reinw. *et al.*) Nees — Piippo (1990), Gao & Cao (2000), Lin (2000), Gao & Bai (2002), Gao (2003), Gao & Lai (2003).
- L. vitrea* Steph. — Lai (1990), Piippo (1990), Gao & Cao (2000), Lin (2000), Paul *et al.* (2001), Gao & Bai (2002), Gao (2003), Gao & Lai (2003), Hsu & Huang (2010).
- Leptolejeunea amphiophthalmia* Zwickel — Yang & Lin (2008c as *L. picta*), Yang (2009 as *L. picta*).
- L. apiculata* (Horik.) S. Hatt. — Piippo (1990 as *L. foliicola*), Gao & Cao (2000), Lin (2000 as *L. foliicola*), Zhu & So (2001), Gao & Lai (2003), Yang (2009), Hsu & Huang (2010).
- L. elliptica* (Lehm. & Lindenb.) Schiffn. — Piippo (1990), Zhu & Hu (1993), Lai (1995), He (1997), Bapna & Kachroo (2000b), Bapna & Kachroo (2000b as *L. subacuta*), Lin (2000), Zhu & So (2001), Zhu & Lai (2003), Yang (2009), Hsu & Huang (2010).
- L. epiphylla* (Mitt.) Steph. — Piippo (1990), He (1997), Zhu & So (1999a), Bapna & Kachroo (2000b), Lin (2000), Zhu & So (2001), Gao & Lai (2003), Gao & Cao (2000), Yang (2009).
- L. maculata* (Mitt.) Schiffn. — Piippo (1990 as *L. radiata*), He (1997 as *L. radiata*), Bapna & Kachroo (2000b as *L. schiffneri*), Lin (2000 as *L. radiata*), Zhu & So (2001), Yang (2009).
- L. truncatifolia* Steph. — Piippo (1990 as *L. aberrantia*), He (1997 as *L. aberrantia*), Lin (2000 as *L. aberrantia*), Zhu & So (2001), Yang (2009).
- Lioclaena subulata* (A. Evans) Schljakov — Piippo (1990 as *Jungermannia subulata*), Bapna & Kachroo (2000a as *J. subulata*), Lin (2000 as *J. subulata*), Váňa *et al.* (2005 as *J. subulata*).
- Lophocolea bidentata* (L.) Dumort. — Piippo (1990 as *Chiloscyphus latifolius* and *C. cuspidatus*), Gao & Cao (2000 as *C. latifolius* and *C. cuspidatus*), Lin (2000 as *C. latifolius* and *C. cuspidatus*), Gao & Lai (2003 as *C. latifolius* and *C. cuspidatus*), Gao & Wu (2008 as *C. latifolius* and *C. cuspidatus*).
- L. fragrans* (Moris. & De Not.) Gottsche *et al.* — Gao & Wu (2008 as *Chiloscyphus fragrans*).
- L. heterophylla* (Schrad.) Dumort. — Lai (1990), Piippo (1990 as *Chiloscyphus profundus*), Lin (2000 as *C. profundus*).
- L. horikawana* S. Hatt. — Piippo (1990 as *Chiloscyphus horikawanus*), Lin (2000).
- L. minor* Nees — Piippo (1990 as *Chiloscyphus minor*), Gao & Cao (2000 as *C. minor*), Lin (2000 as *C. minor*).
- L. muricata* (Lehm.) Nees — Piippo (1990 as *Chiloscyphus muricatus*), Lin (2000 as *C. muricatus*), Wu & Wang (2001), Gao & Wu (2008 as *C. muricatus*).
- Lopholejeunea eulopha* (Taylor) Schiffn. — Piippo (1990 as *L. nicobarica*), He (1997 as *L. nicobarica*), Bapna & Kachroo (2000b as *L. nicobarica*), Lin (2000 as *L. nicobarica*), Zhu & So (2001), Zhu & Gradstein (2005), Yang (2009).
- L. nigricans* (Lindenb.) Schiffn. — Piippo (1990 as *L. brunnea*, *L. javanica* and *L. muensis*), He (1997 as *L. brunnea*, *L. javanica* and *L. muensis*), Lin (2000 as *L. javanica* and *L. muensis*), Zhu & So (2000b as *L. javanica*), Zhu & So (2001), Zhu & Gradstein (2005), Yang (2009).
- L. subfusca* (Nees) Schiffn. — Piippo (1990), Lin & Yang (1992), Lai (1995), He (1997), Bapna & Kachroo (2000b), Gao & Cao (2000), Lin (2000), Zhu & So (2001), Gao & Lai (2003), Zhu & Gradstein (2005), Yang (2009).
- L. zollingeri* (Steph.) Schiffn. — Piippo (1990 as *L. nipponica*), He (1997), Zhu & Gradstein (2005), Yang (2009).
- Lophozia excisa* (Dicks.) Dumort. — Piippo (1990), Lin (2000).
- L. lacerata* N. Kitag. — Piippo (1990), Lin (2000).
- L. wenzelii* (Nees) Steph. — Piippo (1990), Bapna & Kachroo (2000b), Lin (2000), Gao & Lai (2003), Gao & Wu (2008).
- Lunularia cruciata* (L.) Dumort. ex Lindb. — Piippo (1990), Lin (2000).
- Makinoa crispata* (Steph.) Miyake — Piippo (1990), Lin (2000), Hsu & Huang (2010).
- Marchantia emarginata* Reinw. *et al.* subsp. *tosana* (Steph.) Bischl. — Iwatsuki & Mizutani (1972 as *M. cuneiloba*), Lai (1990), Piippo (1990), Lai (1995 as *M. tosana*), Gao & Cao (2000), Lin (2000), Gao & Lai (2003), Zhang & Wu (2006 as *M. tosana*), Hsu & Huang (2010 as *M. cuneiloba* and *M. tosana*).
- M. formosana* Horik. — Piippo (1990), Lin (2000), Hsu & Huang (2010).
- M. paleacea* Bertol. subsp. *diptera* (Nees & Mont.) Inoue — Piippo (1990 as *M. paleacea* var. *diptera*), Gao & Cao (2000), Lin (2000 as *M. paleacea* var. *diptera*), Gao & Lai (2003 as *M. paleacea* var. *diptera*).
- M. paleacea* Bertol. subsp. *paleacea* — Piippo (1990), Lai (1995), Lin (2000).
- M. pinnata* Steph. — Piippo (1990), Lin (2000).
- M. polymorpha* L. — Li (1990), Piippo (1990), Bapna & Kachroo (2000b), Lin (2000).
- Marsupella emarginata* (Ehrh.) Dumort. — Lai (1990), Piippo (1990 as *M. emarginata* subsp. *tubulosa*), Bapna & Kachroo (2000b), Lin (2000 as *M. emarginata* subsp. *tubulosa*), Váňa *et al.* (2005).
- M. pseudofuncckii* S. Hatt. — Piippo (1990), Lin (2000), Gao & Wu (2008).
- Marsupidium knightii* Mitt. — Piippo (1990), Gao & Cao (2000), Lin (2000), Gao & Lai (2003), Gao & Wu

- (2008).
- Mastigolejeunea auriculata* (Wilson) Schiffn. — Piippo (1990), He (1997), Bapna & Kachroo (2000b as *M. humilis*), Lin (2000), Yang (2009).
- M. repleta* (Taylor) A. Evans — Piippo (1990), He (1997), Lin (2000), Yang (2009).
- Mastigophora diclados* (Brid. ex F. Weber) Nees — Piippo (1990), Lin (2000), Gao (2003), Gao & Lai (2003), Lai (2007), Hsu & Huang (2010).
- M. woodsii* (Hook.) Nees — Piippo (1990), Lin (2000), Gao & Lai (2003), Lai (2007), Hsu & Huang (2010).
- Metacalypogeia alternifolia* (Gottsche et al.) Grolle — Piippo (1990), Bapna & Kachroo (2000a), Gao & Cao (2000), Lin (2000).
- M. cordifolia* (Steph.) Inoue — Piippo (1990), Lin (2000).
- Metalejeunea cucullata* (Reinw. et al.) Grolle — Piippo (1990 as *Lejeunea cucullata*), He (1997), Lin (2000 as *L. cucullata*), Zhu & So (2001), Yang (2009).
- Metzgeria consanguinea* Schiffn. — Lin (2000), So (2003b).
- M. foliicola* Schiffn. — So (2003b).
- M. furcata* (L.) Corda — Lai (1990), Piippo (1990 as *M. fauriana*), Bapna & Kachroo (2000b), Lin (2000 as *M. decipiens* and *M. fauriana*), Zhu & So (2001), Gao & Lai (2003), Zhang & Wu (2006), Hsu & Huang (2010).
- M. leptoneura* Spruce — Piippo (1990), Bapna & Kachroo (2000b), Gao & Cao (2000), Lin (2000), Zhu & So (2001), Hsu & Huang (2010 as *M. hamata*).
- M. lindbergii* Schiffn. — Piippo (1990), Bapna & Kachroo (2000b), Lin (2000), Zhu & So (2001).
- M. pubescens* (Schrank) Raddi — Piippo (1990 as *Apometzgeria pubescens*), Lin (2000 as *A. pubescens*), Hsu & Huang (2010 as *A. pubescens*).
- M. temperata* Kuwah. — Piippo (1990 as *M. fruticulosa*), Lin (2000 as *M. fruticulosa*).
- Mnioloma fuscum* (Lehm.) R.M. Schust. — Gao et al. (2002).
- Monosolenium tenerum* Griff. — Piippo (1990), Bapna & Kachroo (2000b), Gao & Cao (2000), Lin (2000), Gao & Lai (2003), Zhang & Wu (2006).
- Mylia taylorii* (Hook.) Gray — Piippo (1990), Lin (2000).
- M. verrucosa* Lindb. subsp. *nuda* (Inoue & B.Y. Yang) Potemkin & Kazanovsky — Piippo (1990 as *M. nuda*), Lin (2000 as *M. nuda*), Gao & Bai (2001 as *M. nuda*), Gao (2003 as *M. nuda*), Gao & Lai (2003 as *M. nuda*), Engel & Braggins (2005 as *M. nuda*), Hsu & Huang (2010 as *M. nuda*).
- M. verrucosa* Lindb. subsp. *verrucosa* — Lai (1990), Piippo (1990), Lin (2000), Gao & Bai (2001), Gao (2003), Gao & Lai (2003), Hsu & Huang (2010).
- Nardia assamica* (Mitt.) Amakawa — Lai (1990), Piippo (1990), Bapna & Kachroo (2000a), Lin (2000), Váňa et al. (2005).
- N. scalaris* Gray — Lai (1990), Piippo (1990), Lin (2000).
- Nipponolejeunea pilifera* (Steph.) S. Hatt. — Piippo (1990), He (1997), Lin (2000), Hsu & Huang (2010).
- N. subalpina* (Horik.) S. Hatt. — Piippo (1990), He (1997), Lin (2000).
- Notoscaphus lutescens* (Lehm. & Lindenb.) Mitt. — Piippo (1990), So & Zhu (1996b), Gao et al. (1999), Bapna & Kachroo (2000a as *N. parvicus*), Lin (2000), Váňa et al. (2005), Zhang & Wu (2006).
- Nowellia curvifolia* (Dicks.) Mitt. — Piippo (1990), Lin (2000), Gao & Lai (2003), Hsu & Huang (2010).
- Odontoschisma denudatum* (Mart.) Dumort. — Lai (1990), Piippo (1990), Lin (2000), Zhu & So (2001).
- O. grosseverrucosum* Steph. — Piippo (1990), Gao & Cao (2000), Gao & Lai (2003), Lin (2000), Yi & Gao (2001), So (2004), Hsu & Huang (2010).
- Pallavicinia ambigua* (Mitt.) Steph. — Piippo (1990), Lin (2000), Gao & Lai (2003).
- P. levieri* Schiffn. — Piippo (1990), Lin (2000).
- P. lyellii* (Hook.) Carruth. — Piippo (1990), Lai (1995), Lin (2000), Zhang & Wu (2006).
- P. subciliata* (Austin) Steph. — Lai (1990), Piippo (1990), Gao & Cao (2000), Lin (2000), Gao & Lai (2003), Hsu & Huang (2010 as *P. longispina*).
- Pellia endiviifolia* (Dicks.) Dumort. — Piippo (1990), Lin (2000).
- P. epiphylla* (L.) Corda — Piippo (1990), Lin (2000).
- P. neesiana* (Gottsche) Limpr. — Piippo (1990), Lin (2000).
- Phaeolejeunea latistipula* (Schiffn.) Mizut. — Piippo (1990), He (1997), Lin (2000).
- Plagiochasma appendiculatum* Lehm. & Lindenb. — Piippo (1990), Bapna & Kachroo (2000b), Lin (2000).
- P. cordatum* Lehm. & Lindenb. — Piippo (1990), Bapna & Kachroo (2000b), Lin (2000).
- P. intermedium* Lindenb. & Gottsche — Piippo (1990), Bapna & Kachroo (2000b), Gao & Cao (2000), Lin (2000), Gao & Lai (2003).
- P. japonicum* (Steph.) C. Massal. — Piippo (1990), Lin (2000).
- P. pterospermum* C. Massal. — Piippo (1990), Bapna & Kachroo (2000b), Lin (2000).
- P. rupestre* (J.R. Forst. & G. Forst.) Steph. — Piippo (1990), Bapna & Kachroo (2000b), Lin (2000).
- Plagiochila arbuscula* (Brid. ex Lehm. & Lindenb.) Lindenb. — Piippo (1990), Lin (2000), So (2001), Gao & Lai (2003), Gao & Wu (2008).
- P. bantamensis* (Reinw. et al.) Mont. — Lin (2000).
- P. chinensis* Steph. — Piippo (1990), Lin (2000), So (2001), Gao & Wu (2008).
- P. delavayi* Steph. — Piippo (1990 as *P. sikutzuisana*), Lin (2000), So (2001).
- P. dendroides* (Nees) Lindenb. — Piippo (1990), Lin (2000), So (2001), Gao & Wu (2008).
- P. dorelii* Schiffn. — Piippo (1990 as *P. vietnamica* and *P. sawadae*), Grolle & So (1999a), Lin (2000), So (2001), Gao & Wu (2008).
- P. duthiana* Steph. — Gao & Lai (2003).
- P. elegans* Mitt. — Piippo (1990), Bapna & Kachroo (2000b), Lin (2000), So (2001), Gao & Wu (2008).
- P. flexuosa* Mitt. — Piippo (1990), Bapna & Kachroo (2000b), Lin (2000), So (2001), Gao & Wu (2008).
- P. fordiana* Steph. — Piippo (1990), Grolle & So (1999b), Lin (2000), So (2001), Zhu & So (2001), Gao & Lai (2003).
- P. fruticosa* Mitt. — Piippo (1990), Bapna & Kachroo (2000b), Lin (2000), So (2001), Gao & Wu (2008), Hsu & Huang (2010).
- P. gracilis* Lindenb. & Gottsche — Piippo (1990), Bapna

- & Kachroo (2000b), Bapna & Kachroo (2000b as *P. firma* var. *acicularis*), Lin (2000), So (2001), Gao & Wu (2008).
- P. gymnoclada* Sande Lac. — Piippo (1990), Lin (2000), So (2001).
- P. javanica* (Sw.) Nees & Mont. — Lin (2000).
- P. junghuhniana* Sande Lac. — Piippo (1990 as *P. massalongoana*), So & Grolle (1999), Lin (2000), So (2001), Gao & Wu (2008).
- P. khasiana* Mitt. — Lin (2000), So (2001), Gao & Wu (2008).
- P. kurzii* Steph. — Piippo (1990 as *P. tobagensis*), Grolle & So (1999c), So (2001).
- P. magna* Inoue — Piippo (1990), Lin (2000), So (2001), Gao & Wu (2008).
- P. multipinnula* Herzog & S. Hatt. — Piippo (1990), Grolle (1999d), Lin (2000), So (2001), Gao & Wu (2008).
- P. nepalensis* Lindenb. — Bapna & Kachroo (2000b as *P. gollanii*), Lin (2000), So (2001), Zhu & So (2001), Gao & Wu (2008), Hsu & Huang (2010 as *P. gollanii*).
- P. obtusa* Lindenb. — Piippo (1990 as *P. eberhardtii*), Grolle & So (1999c), Lin (2000), So (2001).
- P. ovalifolia* Mitt. — Piippo (1990), Lai (1995), Lin (2000), So (2001), Gao & Wu (2008), Hsu & Huang (2010).
- P. parvifolia* Lindenb. — Piippo (1990 as *P. yokogurensis*), Grolle & So (1999b), Lin (2000), So (2001), Gao & Wu (2008).
- P. peculiaris* Schiffn. — Piippo (1990), Piippo (1990 as *P. griffithiana*), Grolle & So (1999c), Lin (2000), So (2001), Gao & Wu (2008), Hsu & Huang (2010).
- P. perserrata* Herzog — Piippo (1990), Grolle & So (1999c), Bapna & Kachroo (2000b), Lin (2000), So (2001).
- P. porelloides* (Torr. ex Nees) Lindenb. — Lin (2000).
- P. pulcherrima* Horik. — Piippo (1990), Lin (2000), So (2001), Gao & Wu (2008), Hsu & Huang (2010).
- P. sciophila* Nees ex Lindenb. — Piippo (1990), Lai (1995), So & Grolle (1999), Lin (2000), So (2001), Gao & Wu (2008), Hsu & Huang (2010 as *P. acanthophylla* subsp. *japonica*).
- P. secretifolia* Mitt. — Piippo (1990), Bapna & Kachroo (2000b), Lin (2000), So (2001), Gao & Wu (2008).
- P. semidecurrens* (Lehm. & Lindenb.) Lindenb. — Piippo (1990), So & Grolle (1999), Lin (2000), So (2001), Zhang & Wu (2006), Gao & Wu (2008).
- P. singularis* Schiffn. — Piippo (1990), Lin (2000), So (2001).
- P. taiwanensis* Inoue — Piippo (1990), Lin (2000), So (2001), Gao & Wu (2008).
- P. trabeculata* Steph. — Piippo (1990), Bapna & Kachroo (2000b), Lin (2000), Zhu & So (2001), Hsu & Huang (2010).
- P. vexans* Schiffn. ex Steph. — So (2001), Gao & Wu (2008).
- P. wangii* Inoue — Gao & Cao (2000), Lin (2000), So (2001), Gao & Lai (2003), Gao & Wu (2008).
- P. zonata* Steph. — Piippo (1990), Lin (2000), So (2001).
- Plagiochilium braunianum* (Nees) S. Hatt. — Piippo (1990), Gao & Cao (2000), Gao & Lai (2003).
- P. mayebarae* S. Hatt. — Grolle (1966 as *P. mayebarae* fo. *integerrimus*), Piippo (1990), Bapna & Kachroo (2000b), Bapna & Kachroo (2000b as *P. mayebarae* fo. *integerrimus*), Gao & Cao (2000), Lin (2000), Gao & Lai (2003), Zheng *et al.* (2005).
- P. oppositum* (Reinw. *et al.*) S. Hatt. — Piippo (1990), Lin (2000).
- Pleurozia acinosa* (Mitt.) Trevis. — Piippo (1990), Thiers (1993), Bai & Li (1998), Lin (2000), Gao & Cao (2000), Gao & Lai (2003), Lai (2007), Gao & Wu (2008), Hsu & Huang (2010).
- P. gigantea* (F. Weber) Lindb. — Bai & Li (1998), Hsu & Huang (2010).
- P. purpurea* Lindb. — Piippo (1990), Thiers (1993), Bai & Li (1998), Bapna & Kachroo (2000b), Gao & Cao (2000), Lin (2000), Gao & Lai (2003), Lai (2007), Hsu & Huang (2010).
- P. subinflata* (Austin) Austin — Piippo (1990 as *Eopleurozia giganteoides*), Thiers (1993), Bai & Li (1998), Gao & Cao (2000 as *E. giganteoides*), Lin (2000 as *E. giganteoides*), Gao & Lai (2003 as *E. giganteoides*), Lai (2007).
- Plicanthus birmensis* (Steph.) R.M. Schust. — Piippo (1990 as *Chandonanthus birmensis*), Bapna & Kachroo (2000b as *C. birmensis*), Lin (2000 as *C. birmensis*), Gao & Lai (2003 as *C. birmensis*), Gao & Wu (2008 as *C. birmensis*).
- P. hirtellus* (F. Weber) R.M. Schust. — Piippo (1990 as *Chandonanthus hirtellus*), Bapna & Kachroo (2000b as *C. hirtellus*), Gao & Cao (2000 as *C. hirtellus*), Lin (2000 as *C. hirtellus*), Wu (2000 as *C. hirtellus*), Gao & Lai (2003 as *C. hirtellus*), Gao & Wu (2008 as *C. hirtellus*), Hsu & Huang (2010 as *C. hirtellus*).
- Porella acutifolia* (Lehm. & Lindenb.) Trevis. subsp. *acutifolia* — Piippo (1990), Gao & Cao (2000), Lin (2000), Gao & Lai (2003).
- P. acutifolia* (Lehm. & Lindb.) Trevis. subsp. *tosana* (Steph.) S. Hatt. — Hattori (1978), Piippo (1990), Gao & Cao (2000), Lin (2000), So (2002), Gao & Lai (2003).
- P. arboris-vitae* (With.) Grolle — Piippo (1990).
- P. caespitans* (Steph.) S. Hatt. var. *caespitans* — Piippo (1990), Gao & Cao (2000), Lin (2000), Gao & Lai (2003), Hsu & Huang (2010).
- P. caespitans* (Steph.) S. Hatt. var. *cordifolia* (Steph.) S. Hatt. — Hattori (1970 as *P. caespitans* var. *setigera*), Piippo (1990), Gao & Cao (2000), Lin (2000), Gao & Lai (2003), Hsu & Huang (2010 as *P. caespitans* var. *setigera*).
- P. caespitans* (Steph.) S. Hatt. var. *nipponica* S. Hatt. — Piippo (1990), Bapna & Kachroo (2000b), Gao & Cao (2000), Lin (2000), Gao & Lai (2003).
- P. densifolia* (Steph.) S. Hatt. — Piippo (1990), Gao & Cao (2000), Lin (2000), Gao & Lai (2003), Hsu & Huang (2010).
- P. gracillima* Mitt. subsp. *gracillima* — Piippo (1990), Gao & Cao (2000), Gao & Lai (2003).
- P. gracillima* Mitt. subsp. *urogea* (C. Massal.) S. Hatt. & M.X. Zhang — Hattori (1971 as *P. gracillima* var. *urogea*), Hattori (1976b as *P. gracillima* var. *urogea*), Piippo (1990), Bapna & Kachroo (2000b), Lin (2000).
- P. grandiloba* Lindb. — Piippo (1990), Lin (2000).
- P. japonica* (Sande Lac.) Mitt. — Hattori (1967), Piippo (1990), Bapna & Kachroo (2000b), Lin (2000), Hsu &

- Huang (2010).
- P. obtusata* (Taylor) Trevis. var. *macroloba* (Steph.) S. Hatt. & M.X. Zhang — Piippo (1990), Bapna & Kachroo (2000b), Gao & Cao (2000), Lin (2000), Gao & Lai (2003).
- P. perrottetiana* (Mont.) Trevis. — Piippo (1990), Lai (1995), Bapna & Kachroo (2000b), Gao & Cao (2000), Lin (2000), Gao & Lai (2003), Hsu & Huang (2010).
- P. plumosa* (Mitt.) Parihar — Piippo (1990), Bapna & Kachroo (2000b), Gao & Cao (2000), Lin (2000), Gao & Lai (2003).
- P. ulophylla* (Steph.) S. Hatt. — Piippo (1990 as *Macvicaria ulophylla*), Gao & Cao (2000 as *M. ulophylla*), Lin (2000 as *M. ulophylla*), Gao & Lai (2003 as *M. ulophylla*).
- P. vernicosa* Lindb. — Piippo (1990), Lin (2000).
- Preiszia quadrata* (Scop.) Nees — Piippo (1990), Lin (2000).
- Pseudolepicolea andoi* (R.M. Schust.) Inoue — Piippo (1990), Bapna & Kachroo (2000a as *P. trollii* subsp. *andoi*), Lin (2000).
- Ptychanthus striatus* (Lehm. & Lindenb.) Nees — Piippo (1990), Lin (1990), Lai (1995), He (1997), Bapna & Kachroo (2000b), Lin (2000), Zhu & So (2001), Yang (2009), Hsu & Huang (2010).
- Radula acuminata* Steph. — Piippo (1990), Bapna & Kachroo (2000b), Lin (2000), Zhu & So (2001), Zhu & Lai (2003), Hsu & Huang (2010).
- R. acuta* Mitt. — Piippo (1990 as *R. apiculata*), Lin (2000 as *R. apiculata*), Gao & Wu (2008 as *R. apiculata*).
- R. anceps* Sande Lac. — Piippo (1990), Lin (2000).
- R. auriculata* Steph. — Piippo (1990), Gao & Wu (2008).
- R. campanigera* Mont. — Piippo (1990), Lin (2000), Hsu & Huang (2010).
- R. cavifolia* Hampe ex Gottsche et al. — Piippo (1990), Gao & Cao (2000), Lin (2000), Zhu & So (2001), Gao & Lai (2003), Gao & Wu (2008).
- R. chinensis* Steph. — Piippo (1990), Bapna & Kachroo (2000b), Gao & Cao (2000), Lin (2000), Gao & Lai (2003).
- R. constricta* Steph. — Piippo (1990), Bapna & Kachroo (2000b), Gao & Cao (2000), Lin (2000), Gao & Lai (2003).
- R. formosa* (C.F.W. Meissn. ex Spreng.) Nees — Piippo (1990), Gao & Cao (2000), Lin (2000), Gao & Lai (2003), Gao & Wu (2008).
- R. fulvifolia* (Hook. f. & Taylor) Gottsche et al. — Gao & Cao (2000 as *R. meyeri*), Gao & Lai (2003 as *R. meyeri*).
- R. inouei* K. Yamada — Piippo (1990), Gao & Cao (2000), Lin (2000), Gao & Lai (2003), Gao & Wu (2008).
- R. japonica* Gottsche ex Steph. — Piippo (1990), Lin (2000).
- R. javanica* Gottsche — Piippo (1990), Bapna & Kachroo (2000b), Lin (2000), Zhu & So (2001), Hsu & Huang (2010), Hsu & Huang (2010 as *R. variabilis*).
- R. kojana* Steph. — Lai (1990), Piippo (1990), Lin (2000), Zhu & So (2001), Gao & Wu (2008).
- R. nymanii* Steph. — Piippo (1990), Lin (2000), Gao & Wu (2008).
- R. obscura* Mitt. — Piippo (1990), Bapna & Kachroo (2000b), Gao & Cao (2000), Lin (2000), Gao & Lai (2003), Hsu & Huang (2010).
- R. okamurana* Steph. — Piippo (1990), Lin (2000).
- R. onraedtii* K. Yamada — Lin (2000), Gao & Wu (2008).
- R. oyamensis* Steph. — Piippo (1990), Gao & Cao (2000), Lin (2000), Gao & Lai (2003), Gao & Wu (2008), Hsu & Huang (2010).
- R. perrottetii* Gottsche ex Steph. — Piippo (1990), Bapna & Kachroo (2000b), Gao & Cao (2000), Lin (2000), Zhu & So (2001), Gao & Lai (2003), Hsu & Huang (2010), Hsu & Huang (2010 as *R. valida*).
- R. philippinensis* K. Yamada — Piippo (1990), Lin (2000), Gao & Wu (2008).
- R. reflexa* Nees & Mont. — Hsu & Huang (2010).
- R. retroflexa* Taylor — Piippo (1990), Piippo (1990 as *R. retroflexa* var. *fauciloba*), Lai (1995), Bapna & Kachroo (2000b), Lin (2000), Lin (2000 as *R. retroflexa* var. *fauciloba*), Gao & Wu (2008), Gao & Wu (2008 as *R. retroflexa* var. *fauciloba*), Hsu & Huang (2010).
- R. tjiibodensis* K.I. Goebel — Zhu & So (2001).
- R. tokiensis* Steph. — Piippo (1990), Piippo (1990 as *R. kanamarui*), Bapna & Kachroo (2000b), Lin (2000).
- R. yangii* K. Yamada — Piippo (1990), Bapna & Kachroo (2000b), Lin (2000), Gao & Wu (2008).
- Reboulia hemisphaerica* (L.) Raddi — Lai (1990), Piippo (1990), Lai (1995), Lin (2000), Hsu & Huang (2010).
- Riccardia angustata* Horik. — Piippo (1990), Lin (2000).
- R. chamedryfolia* (With.) Grolle — Piippo (1990), Lin (2000).
- R. crassa* (Schwägr.) Carrington & Pearson — Yao & Lin (2010).
- R. crenulata* Schiffn. — Piippo (1990), Lin (2000).
- R. flavovirens* Furuki — Yao & Lin (2010).
- R. formosensis* (Steph.) Horik. — Piippo (1990), Lin (2000).
- R. graeffei* (Steph.) Hewson — Piippo (1990 as *R. platyclada*), Lin (2000 as *R. platyclada*).
- R. kodamae* Mizut. & S. Hatt. — Yao & Lin (2010).
- R. latifrons* (Lindb.) Lindb. — Piippo (1990), Gao & Cao (2000), Lin (2000), Gao & Lai (2003).
- R. marginata* (Colenso) Pearson var. *pacifica* Furuki — Yao & Lin (2010).
- R. multifida* (L.) Gray — Lai (1990), Lai (1995), Gao & Cao (2000), Lin (2000), Gao & Lai (2003).
- R. nagasakiensis* (Steph.) S. Hatt. — Piippo (1990 as *R. jackii*).
- R. palmata* (Hedw.) Carruth. — Piippo (1990), Gao & Cao (2000), Lin (2000), Gao & Lai (2003).
- R. pumila* Furuki — Yao & Lin (2010).
- R. submultifida* Horik. — Piippo (1990), Lin (2000).
- Riccia fluitans* L. — Lai (1990), Piippo (1990), Gao & Cao (2000), Lin (2000), Gao & Lai (2003), Zhang & Wu (2006).
- R. glauca* L. — Lai (1990), Piippo (1990), Lin & Yang (1992), Gao & Cao (2000), Lin (2000), Gao & Lai (2003).
- Ricciocarpos natans* (L.) Corda — Lai (1990), Piippo (1990), Gao & Cao (2000), Lin (2000), Gao & Lai (2003).
- Saccogynidium irregularospinum* C. Gao, T. Cao & M.J. Lai — Gao et al. (2001), Gao & Wu (2008).
- S. muricellum* (De Not.) Grolle — Piippo (1990), Lai (1995), Lin (2000), Gao et al. (2001), Gao & Wu (2008).
- S. rigidulum* (Nees) Grolle — Piippo (1990), Lin (2000), Gao

- et al.* (2001), Gao & Lai (2003), Gao & Wu (2008).
- Scapania ampliata* Steph. — Zuo & Cao (2007), Zuo *et al.* (2008).
- S. bolanderi* Austin — Piippo (1990), Lin (2000), Gao & Wu (2008), Zuo *et al.* (2008).
- S. ciliata* Sande Lac. — Piippo (1990), Bapna & Kachroo (2000b), Gao & Cao (2000), Lin (2000), Gao & Wu (2008), Zuo *et al.* (2008), Hsu & Huang (2010).
- S. ciliatospinosa* Horik. — Piippo (1990), Potemkin (1999), Bapna & Kachroo (2000b), Gao & Cao (2000), Lin (2000), Gao & Lai (2003), Gao & Wu (2008), Zuo *et al.* (2008).
- S. curta* (Mart.) Dumort. — Gao & Wu (2008), Zuo *et al.* (2008).
- S. ferruginea* (Lehm. & Lindenb.) Gottsche *et al.* — Piippo (1990), Bapna & Kachroo (2000b), Gao & Cao (2000), Lin (2000), Gao & Wu (2008), Zuo *et al.* (2008).
- S. gracilis* Lindb. — Piippo (1990).
- S. griffithii* Schiffn. — Gao & Wu (2008), Zuo *et al.* (2008).
- S. javanica* Gottsche — Piippo (1990), Lin (2000).
- S. ligulata* Steph. subsp. *ligulata* — Piippo (1990), Bapna & Kachroo (2000b), Lin (2000), Zuo *et al.* (2008).
- S. ligulata* Steph. subsp. *stephanii* (Müll. Frib.) Potemkin *et al.* — Piippo (1990 as *S. stephanii*), Lai (1995 as *S. stephanii*), Lin (2000 as *S. stephanii*), Potemkin *et al.* (2004), Gao & Wu (2008 as *S. stephanii*), Zuo *et al.* (2008 as *S. stephanii*), Hsu & Huang (2010), Hsu & Huang (2010 as *S. stephanii*).
- S. maxima* Horik. — Bapna & Kachroo (2000b), Potemkin (2002), Hsu & Huang (2010).
- S. nemorea* (L.) Grolle — Piippo (1990), Lin (2000), Zuo *et al.* (2008).
- S. nimbosea* Taylor ex Lehm. — Zuo *et al.* (2008).
- S. ornithopodioides* (With.) Waddell — Piippo (1990), Lin (2000), Gao & Wu (2008), Zuo *et al.* (2008), Hsu & Huang (2010).
- S. parvitexta* Steph. — Piippo (1990), Piippo (1990 as *S. glaucoviridis*), Bapna & Kachroo (2000b as *S. glaucoviridis*), Lin (2000 as *S. glaucoviridis*), Gao & Wu (2008 as *S. parvidens* and *S. glaucoviridis*), Gao & Wu (2008), Zuo *et al.* (2008), Zuo *et al.* (2008 as *S. glaucoviridis* and *S. parvidens*), Hsu & Huang (2010 as *S. glaucoviridis*).
- S. subnimbosea* Steph. — Piippo (1990), Gao & Cao (2000), Lin (2000 as *S. robusta*), Lin (2000), Gao & Lai (2003), Gao & Wu (2008), Zuo *et al.* (2008), Hsu & Huang (2010 as *S. robusta*).
- S. umbrosa* (Schrad.) Dumort. — Zuo *et al.* (2008).
- S. undulata* (L.) Dumort. — Piippo (1990), Lin (2000), Gao & Wu (2008).
- Schiffneria hyalina* Steph. — Lai (1990), Piippo (1990), Bapna & Kachroo (2000a), Lin (2000), Wu & Wang (2001), Gao & Lai (2003), Long (2005), Hsu & Huang (2010).
- Schiffneriolejeunea tumida* (Nees) Gradst. var. *haskarlana* (Gottsche) Gradst. & Terken — Piippo (1990 as *S. tumida*), He (1997 as *S. tumida*), Lin (2000 as *S. tumida*), Yang (2009).
- Schistochila acuminata* Steph. — Piippo (1990), Lin (2000), Wu & Jong (2001), Gao & Lai (2003), So (2003a), Gao & Wu (2004), Lai (2007), Gao & Wu (2008).
- S. aligera* (Nees & Blume) J.B. Jack & Steph. — Piippo (1990 as *Gottschea aligera*), Bapna & Kachroo (2000b), Gao & Cao (2000 as *G. aligera*), Lin (2000 as *G. aligera*), Gao & Lai (2003 as *G. aligera*), So (2003a), Gao & Wu (2004 as *G. aligera*), Lai (2007 as *G. aligera* and *G. philippinensis*), Gao & Wu (2008 as *G. aligera* and *G. philippinensis*), Hsu & Huang (2010 as *Paraschistochila aligera* and *P. philippinensis*).
- S. blumei* (Nees) Trevis. — Piippo (1990), Lin (2000), Gao & Lai (2003), So (2003a), Lai (2007), Gao & Wu (2008).
- S. minor* C. Gao & Y.H. Wu — Gao & Wu (2004), Gao & Wu (2008).
- S. nuda* Horik. — Piippo (1990 as *Gottschea nuda*), Gao & Cao (2000 as *G. nuda*), Lin (2000 as *G. nuda*), Gao & Lai (2003 as *G. nuda*), So (2003a), Lai (2007 as *G. nuda*), Gao & Wu (2008 as *G. nuda*).
- Schistochilopsis cornuta* (Steph.) Konstant. — Piippo (1990 as *Lophozia cornuta*), Gao & Cao (2000 as *L. cornuta*), Lin (2000 as *L. cornuta*).
- S. incisa* (Schrad.) Konstant. — Piippo (1990 as *Lophozia incisa*), Bapna & Kachroo (2000b as *L. incisa*), Gao & Cao (2000 as *L. incisa*), Lin (2000 as *L. incisa*), Gao & Wu (2008 as *L. incisa*).
- S. nakanishii* (Inoue) Konstant. — Piippo (1990 as *Lophozia nakanishii*), Lin (2000 as *L. nakanishii*).
- Solenostoma appressifolium* (Mitt.) Váňa & D.G. Long — Piippo (1990 as *Jungermannia appressifolia*), Bapna & Kachroo (2000a as *J. appressifolia*), Gao & Cao (2000 as *J. appressifolia*), Lin (2000 as *J. appressifolia*), Gao & Bai (2001 as *Haplozia rotundifolia*), Gao (2003 as *J. appressifolia*), Gao & Lai (2003 as *J. appressifolia*).
- S. caespiticium* (Lindenb.) Steph. — Hsu & Huang (2010 as *Aplozia caespiticia*).
- S. comatum* (Nees) C. Gao — Piippo (1990 as *Jungermannia comata*), Bapna & Kachroo (2000a as *J. comata*), Lin (2000 as *J. comata*), Váňa *et al.* (2005 as *J. comata*).
- S. gracillimum* (Sm.) R.M. Schust. — Piippo (1990 as *Jungermannia gracillima*), Hsu & Huang (2010 as *Plectocolea crenulata*).
- S. hasskarlianum* (Nees) R.M. Schust. ex Váňa & D.G. Long — Piippo (1990 as *Jungermannia hasskarliana*), Bapna & Kachroo (2000a as *J. hasskarliana*), Lin (2000 as *J. hasskarliana*).
- S. hyalinum* (Lyell) Mitt. — Piippo (1990 as *Jungermannia hyalina*), Lin (2000 as *J. hyalina*).
- S. infusum* (Mitt.) Hentschel — Lai (1990 as *Jungermannia infusca*), Piippo (1990 as *J. infusca*), Bapna & Kachroo (2000a as *J. infusca*), Lin (2000 as *J. infusca*), Váňa *et al.* (2005 as *J. infusca*).
- S. pseudocyclops* (Inoue) Váňa & D.G. Long — Piippo (1990 as *Jungermannia pseudocyclops*), Bapna & Kachroo (2000a as *J. pseudocyclops*), Gao & Cao (2000 as *J. pseudocyclops*), Lin (2000 as *J. pseudocyclops*), Gao & Bai (2001 as *J. pseudocyclops*), Gao & Lai (2003 as *J. pseudocyclops*).
- S. pyriformum* Steph. — Lai (1990 as *Jungermannia pyriforma*), Piippo (1990 as *J. pyriforma*), Piippo *et al.* (1997 as *J. pyriforma*), Bapna & Kachroo (2000a as *J. pyriforma*), Lin (2000 as *J. pyriforma*).

- S. radicellosum* Mitt. — Gao (2003 as *Jungermannia radicellosa*).
- S. schaulianum* (Steph.) Váňa & D.G. Long — Piippo (1990 as *Jungermannia schauliana*), Bapna & Kachroo (2000a as *J. schauliana*), Gao & Cao (2000 as *J. schauliana*), Lin (2000 as *J. schauliana*), Gao & Bai (2001 as *J. schauliana*), Gao (2003 as *J. schauliana*), Gao & Lai (2003 as *J. schautiana*).
- S. speciosum* (Horik.) Hentschel et al. — Piippo (1990 as *Scaphophyllum speciosum*), Schuster (1998 as *S. speciosum* subsp. *speciosum*), Lai (1999 as *S. speciosum*), Bapna & Kachroo (2000a as *S. speciosum*), Gao & Cao (2000 as *S. speciosum*), Lin (2000 as *S. speciosum*), Gao & Bai (2001 as *S. speciosum*), Gao (2003 as *S. speciosum*), Gao & Lai (2003 as *S. speciosum*), Lai (2007 as *S. speciosum*).
- S. subrubrum* (Schiffn. ex Steph.) Váňa & D.G. Long — Piippo (1990 as *Jungermannia subrubra*), Bapna & Kachroo (2000a as *J. subrubra*), Lin (2000 as *J. subrubra*).
- S. tetragonum* (Lindenb.) R.M. Schust. ex Váňa & D.G. Long — Piippo (1990 as *Jungermannia tetragona*), Gao & Cao (2000 as *J. tetragona*), Lin (2000 as *J. tetragona*), Gao & Bai (2001 as *J. tetragona*), Gao & Lai (2003 as *J. tetragona*), Váňa et al. (2005 as *J. tetragona*).
- S. truncatum* (Nees) R.M. Schust. ex Váňa & D.G. Long — Lai (1990 as *Jungermannia truncata*), Piippo (1990 as *J. truncata*), Lai (1995 as *J. truncata*), Bapna & Kachroo (2000a as *J. truncata*), Lin (2000 as *J. truncata*), Gao & Lai (2003 as *J. truncata*), Váňa et al. (2005 as *J. truncata*).
- S. virgatum* (Mitt.) Váňa & D.G. Long — Piippo (1990 as *Jungermannia virgata*), Lin (2000 as *J. virgata*), Váňa et al. (2005 as *J. virgata*).
- S. vulcanicola* (Schiffn.) Nyushko — Lai (1990 as *Jungermannia vulcanicola*).
- Sphenolobopsis pearsonii* (Spruce) R.M. Schust. — Piippo (1990), Lin (2000), Gao & Wu (2008), Huang & Lin (2009 as *Cephaloziaopsis pearsonii*).
- Spruceanthus polymorphus* (Sande Lac.) Verd. — Piippo (1990), He (1997 as *Archilejeunea polymorpha*), Bapna & Kachroo (2000b as *A. polymorpha*), Gao & Cao (2000 as *A. polymorpha*), Lin (2000), Gao & Lai (2003 as *A. polymorpha*), Yang (2009 as *A. polymorpha*), Hsu & Huang (2010).
- S. semirepandus* (Nees) Verd. — Piippo (1990), He (1997), Bapna & Kachroo (2000b), Lin (2000), Zhu & So (2001), Yang (2009), Hsu & Huang (2010).
- Szygiella autumnalis* (DC.) Feldberg et al. — Piippo (1990 as *Jamesoniella autumnalis*), Bapna & Kachroo (2000b as *J. autumnalis*), Lin (2000 as *J. autumnalis*), Zhu & So (2001 as *J. autumnalis*), Hsu & Huang (2010 as *J. autumnalis*).
- S. nipponica* (S. Hatt.) Feldberg et al. — Piippo (1990 as *J. nipponica*), Bapna & Kachroo (2000b as *J. nipponica*), Gao & Cao (2000 as *J. nipponica*), Lin (2000 as *J. nipponica*).
- S. securifolia* (Nees ex Lindenb.) Inoue — Piippo (1990), Lin (2000), Gao & Wu (2008).
- Targionia formosica* Horik. — Piippo (1990), Lin (2000).
- T. hypophylla* L. — Piippo (1990), Bapna & Kachroo (2000b), Lin (2000).
- Telaranea neesii* (Lindenb.) Fulford — Wu & Yamada (1996).
- T. planifolia* (Steph.) J.J. Engel & G.L. Merr. — Engel & Merrill (2004).
- T. wallichiana* (Gottsche) R.M. Schust. — Piippo (1990 as *Lepidozia wallichiana*), Lai (1995 as *L. wallichiana*), Bapna & Kachroo (2000a as *L. wallichiana*), Lin (2000 as *L. wallichiana*), Gao & Lai (2003 as *L. wallichiana*), Engel & Merrill (2004), Hsu & Huang (2010 as *L. wallichiana*).
- Temnoma setigerum* (Lindenb.) R.M. Schust. — Long & Grolle (1990), Piippo (1990), Bapna & Kachroo (2000a), Gao & Cao (2000), Lin (2000), Gao (2003), Gao & Lai (2003).
- Tetralophozia filiformis* (Steph.) Urmi — Piippo (1990), Wang (1993 as *Chandonanthus pusillus*), Bapna & Kachroo (2000b), Gao & Cao (2000), Lin (2000), Gao & Wu (2008), Hsu & Huang (2010 as *C. pusillus*).
- T. setiformis* (Ehrh.) Schljakov — Piippo (1990).
- Thysananthus aculeatus* Herzog — Piippo (1990), He (1997), Lin (2000), Yang (2009).
- T. flavescens* (S. Hatt.) Gradst. — Lin (2000), Yang (2009).
- T. spathulistipus* (Reinw. et al.) Lindenb. — Piippo (1990), He (1997), Lin (2000), Yang (2009).
- Trichocolea merrillana* Steph. — Piippo (1990), Gao & Cao (2000), Lin (2000), Wu & Wang (2001 as *T. lumbrioides*), Gao (2003), Gao & Lai (2003), Lai (2007), Hsu & Huang (2010).
- T. tomentella* (Ehrh.) Dumort. — Piippo (1990), Lai (1995), Bapna & Kachroo (2000a), Lin (2000), Gao & Lai (2003), Lai (2007), Lai (2007 as *T. pluma*), Hsu & Huang (2010), Hsu & Huang (2010 as *T. pluma*).
- Trichocoleopsis sacculata* (Mitt.) S. Okamura — Piippo (1990), Lin (2000), Gao & Lai (2003), Lai (2007), Hsu & Huang (2010).
- Tritomaria exsecta* (Schmidel ex Schrad.) Schiffn. ex Loeske — Piippo (1990), Bapna & Kachroo (2000b), Gao & Cao (2000), Lin (2000), Gao & Wu (2008).
- T. quinquedentata* (Huds.) H. Buch — Piippo (1990), Bapna & Kachroo (2000b), Gao & Cao (2000), Lin (2000), Gao & Lai (2003).
- Trocholejeunea infusata* (Mitt.) Verd. — Piippo (1990), Bapna & Kachroo (2000b).
- T. sandvicensis* (Gottsche) Mizut. — Lai (1990), Piippo (1990), Lai (1995), He (1997), Bapna & Kachroo (2000b), Gao & Cao (2000), Lin (2000), Zhu & So (2001), Zhang & Wu (2006), Yang (2009), Hsu & Huang (2010).
- Tuyamaella molischii* (Schiffn.) S. Hatt. var. *molischii* — Piippo (1990), He (1997), Lin (2000), Yang (2009).
- T. molischii* (Schiffn.) S. Hatt. var. *taiwanensis* R.L. Zhu & M.L. So — Zhu & So (2000a), Zhu & So (2001).
- Wettsteinia inversa* (Sande Lac.) Schiffn. — Piippo (1990), Gao & Cao (2000), Lin (2000), Gao (2003), Gao & Lai (2003).
- W. rotundifolia* (Horik.) Grolle — Piippo (1990), Gao & Cao (2000), Lin (2000), Gao (2003), Gao & Lai (2003).
- Wiesnerella denudata* (Mitt.) Steph. — Piippo (1990), Bapna

- & Kachroo (2000b), Lin (2000), Gao & Lai (2003).
Xenochila integrifolia (Mitt.) Inoue — Piippo (1990), Bapna & Kachroo (2000b), Gao & Cao (2000), Lin (2000), Gao & Lai (2003).
Zoopsis liukuensis Horik. — Piippo (1990), Gao & Cao (2000), Lin (2000), Gao & Lai (2003).

Hornworts (Anthocerotophyta)

- Anthoceros agrestis* Paton — Lai & Wang-Yang (1976 as *A. nagasakiensis*).
A. angustus Steph. — Long & Grolle (1990 as *A. formosae*), Piippo (1990 as *A. formosae*), Hasegawa (1992), Hasegawa (1993), Bapna & Kachroo (2000a as *A. formosae*), Gao & Cao (2000 as *A. formosae*), Lin (2000), Zhang & Wu (2006 as *A. formosae*).
A. fusiformis Austin var. *fusiformis* — Piippo (1990).
A. fusiformis Austin var. *taiwanensis* J. Haseg. — Hasegawa (1993).
A. punctatus L. — Piippo (1990), Hasegawa (1993), So (1995), Lin (2000).
Dendroceros japonicus Steph. — Piippo (1990), Hasegawa (1993), Gao & Cao (2000), Lin (2000), Wu & Wang (2001), Gao & Lai (2003).
D. javanicus (Nees) Nees — Piippo (1990), Hasegawa (1993), Lin (2000).
D. tubercularis S. Hatt. — Piippo (1990), Hasegawa (1993), Lin (2000).
Folioceros amboinensis (Schiffn.) Piippo — Hasegawa (1993 as *Anthoceros amboinensis*).
F. appendiculatus (Steph.) J. Haseg. — Hasegawa (1993 as *Anthoceros* aff. *appendiculatus*).
F. fuciformis (Mont.) D.C. Bhardwaj — Piippo (1990 as *F. vesiculosus*), Hasegawa (1993 as *Anthoceros fuciformis*), Lin (2000 as *F. vesiculosus*).
F. glandulosus (Lehm. & Lindenb.) D.C. Bharadwaj — Piippo (1990), Lin (2000).
Folioceros verruculosus (J. Haseg.) R.L. Zhu & M.J. Lai, comb. nova. Basionym: *Anthoceros verruculosus* J. Haseg., Acta Phytotax. Geobot. 44(2): 103. 1993. According to the description and illustration by Hasegawa (1993), *A. verruculosus* has ecostate, cavernous thali, and strongly thick-walled elaters. Hence it is better to place it in the genus *Folioceros*. — Hasegawa (1993 as *Anthoceros verruculosus*).
Megaceros flagellaris (Mitt.) Steph. — Piippo (1990), Hasegawa (1993), Gao & Cao (2000), Lin (2000), Gao & Lai (2003), Zhang & Wu (2006).
Notothylas javanica (Sande Lac.) Gottsche — Piippo (1990), Hasegawa (1993), Lin (2000).
N. orbicularis (Schwein.) Sull. ex A. Gray — Piippo (1990), Lin (2000), Zhang & Wu (2006 as *N. japonica*).
Phaeoceros carolinianus (Michx.) Prosk. — Lai (1990), Piippo (1990 as *P. laevis* subsp. *carolinianus*), Hasegawa (1993), Lin (2000 as *P. laevis* subsp. *carolinianus*), Guo & Zhang (2001 “1999” as *P. laevis* subsp. *carolinianus*).
P. exiguus (Steph.) J. Haseg. — Hasegawa (1993).

- P. laevis* (L.) Prosk. — Piippo (1990), Piippo (1990 as *P. miyakeanus*), Hasegawa (1991), So (1995), Bapna & Kachroo (2000a), Lin (2000 as *P. miyakeanus*), Zhang & Wu (2006).
P. pearsonii (M. Howe) Prosk. — Piippo (1990 as *Anthoceros pearsonii*).

Doubtful and excluded records

- Asterella tenella* (L.) Beauv. — All records of *A. tenella* from outside of North America are wrong (Grolle 1989).
Bazzania pearsonii Steph. — The record of this species in Taiwan by Lai and Wang-Yang (1976) and Lai (1977) is erroneous (Yamada & Lai 1979).
B. mayebarae S. Hatt. — The record of this species in Taiwan by Lai and Wang-Yang (1976) and Lai (1977) is erroneous (Yamada & Lai 1979).
Cheilolejeunea mariana (Gottsche) B.M. Thiers & Gradst. — This species has been excluded from China and the records from China were erroneous identifications, and the Taiwan specimen actually is assignable to *Lopholejeunea javanica* (Zhu & So 2000b), which is a synonym of *L. nigricans* (Zhu & Gradstein 2005).
C. minutissima Nakanishi — *C. minutissima* was included in Kuo and Chiang (1988), Piippo (1990) and He (1997). The name “*Cheilolejeunea minutissima*” (Nakanishi 1964: 72) was a misprinting of *Cololejeunea minutissima* (Sm.) Schiffn. Hence, the species *Cheilolejeunea minutissima* Nakanishi does not exist (Zhu et al. 2002).
Cololejeunea filicis (Herzog) Piippo — The record in Taiwan (He 1997) was an erroneous citation.
C. reinecheana Steph. — All records of *C. reinecheana* from China are actually *C. formosana*, a synonym of *C. ceratilibula* (Zhu & So 1998b).
Conocephalum riccardia B.Y. Yang, nom. nud.
Diplasiolejeunea pellucida (Meissn.) Schiffn. — *D. pellucida* has to be excluded from the bryoflora of Taiwan, because the vouchers from Taiwan are assignable to *D. cavifolia* (Zhu & So 2001). The reliable records of the true *D. pellucida* are restricted to the Neotropics (Grolle 1995).
Fossombronina cristula Austin — This species is endemic to the eastern North America. All records from Taiwan by Piippo (1990), Piippo (1990 as *F. australi-nipponica*) and Lin (2000 as *F. australi-nipponica*) are erroneous determinations (Krayesky et al. 2005).
Frullania fauriana Steph. — The records of *F. fauriana* from Taiwan are doubtful (Kamimura 1961).
Herbertus longifissus Steph. — *H. longifissus* is a species occurring only in Melanesia (So 2003c, Juslén 2006). Asian specimens named as *H. longifissus* revealed to be *H. sakuraii* (So 2003c), which is a synonym of *H. dicranus* (Hodgetts 2003).
H. maximus B.Y. Yang, nom. nud.
Heteroscyphus acutangulus (Schiffn.) Schiffn. — The record of this species in Taiwan is actually *Chiloscyphus sikimensis* (Wu & Gao 2008).
H. bescherellei (Steph.) S. Hatt. fo. *tenella* Herzog, nom. nud.

- H. zollingeri* (Gottsche) Schiffn. fo. *pluridentatus* Herzog — *H. zollingeri* fo. *pluridentatus* was synonymized with *H. zollingeri* by Gao & Wu (2008).
- Jungermannia ariadne* Taylor ex Lehm. — The records of this species by Piippo (1990) and Bapna and Kachroo (2000a) in Taiwan belong to *J. hasskarliana* (Váša & Inoue 1983).
- J. kyushuensis* Amakawa — The specimen mentioned as *J. kyushuensis* by Lai and Wang-Yang (1976) and Hsu & Huang (2010) belongs to *J. infusca* (Piippo 1990), which is a synonym of *Solenostoma infusum* (Hentschel et al. 2007a).
- Kurzia sylvatica* (A. Evans) Grolle — The record from Taiwan is questionable (Piippo 1990).
- Lejeunea planiloba* A. Evans — Horikawa (1934a) reported an epiphyllous occurrence of *L. planiloba* in Taiwan, but the voucher does not contain that species. Hence, the occurrence of this species in Taiwan remains doubtful (Zhu & So 2001).
- L. subigiensis* (Steph.) Steph. — The record of this species in Taiwan by Herzog and Noguchi (1955) is assignable to *L. anisophylla* Mont. (present study).
- Lepicolea scolopendra* (Hook.) Dumort. — The only record in China was based on Horikawa's collection from Taiwan, which actually was assignable to *L. yakusimensis* by Inoue (1978).
- Leptolejeunea emarginata* (Horik.) S. Hatt. — The type specimen of this species might be missing. Based on the protologue, *L. emarginata* appears to be closely related to *L. apiculata* (Zhu & So 2001).
- L. foliicola* Steph. — This name may be synonym of *L. elliptica* (Zhu & So 2001).
- Lophocolea semiteres* (Lehm.) Mitt. — *L. semiteres* (Piippo 1990, Lin 2000 as *Chiloscyphus semiteres*) does not occur in China (Piippo 1996).
- Lopholejeunea aberrantia* Horik. — The material in HIRO (including the type) may have been destroyed in 1945 when Hiroshima was bombed (H. Deguchi and T. Yamaguchi pers. comm.). Judging from the original description and illustrations, this species may be a member of *Archilejeunea* because of its 5–6-keeled perianths without laciniae (Zhu & Gradstein 2005).
- L. applanata* (Reinw. et al.) Schiffn. — The records in Taiwan are *L. nigricans* (Zhu & Gradstein 2005).
- Marsupella commutata* (Limpr.) Bernet — The record in Taiwan by Bapna and Kachroo (2000b) is uncertain.
- Metzgeria albinea* Spruce — The record in China and Asia was excluded by So (2003b), the voucher specimens in China are referable to *M. foliicola*. *Metzgeria albinea* is known only from New Zealand (So 2003b).
- M. conjugata* Lindb. — All records of this species from Taiwan and mainland China are treated here as *M. lindbergii* Schiffn.
- Plagiochila blepharophora* (Nees) Lindenb. — Excluded from China by So (2001).
- P. debilis* Mitt. — According to So (2001), the record of *P. debilis* in Taiwan by Bapna and Kachroo (2000b) is uncertain.
- P. grandis* B.Y. Yang, *nom. nud.*
- P. hattoriana* Inoue, *nom. inval.* (So 2001).
- P. integrilobula* Schiffn. — The record in Taiwan is based on *P. tobagensis* (Herzog & Noguchi 1955), which is a synonym of *P. kurzii* (So 2001).
- P. microdonta* Mitt. — The record in China is based on erroneous identification (So 2001).
- P. oblonga* Inoue — The record in China (Taiwan) is based on erroneous identification (So 2001).
- P. philippinensis* Steph. — The record in China (Taiwan) is based on erroneous identification (So 2001).
- P. semidecurrens* var. *longifolia* Inoue — According to So (2001), the record of this species in Taiwan by Bapna and Kachroo (2000b) is uncertain.
- Porella revoluta* (Lehm.) Grolle — The record in Taiwan by Bapna and Kachroo (2000b) is uncertain.
- Pseudolepicolea trollii* (Herzog) Grolle & Ando — The records of this species by Piippo (1990) and Bapna and Kachroo (2000a) in Taiwan belong to *P. andoi* (Inoue 1978).
- Radula borneensis* Steph. — The record of *R. borneensis* from Taiwan is uncertain (Yamada & Inoue 1988).
- R. complanata* (L.) Dumort. — The record in Taiwan is uncertain (Yamada & Inoue 1988).
- R. lindenberghiana* Gottsche ex C. Hartm. — The records of *R. lindenberghiana* from Asia are based on erroneous determinations, this species is rejected from Taiwan (Yamada 1979).
- R. portoricensis* Steph. — According to Yamada & Inoue (1988), the occurrence of Latin American *R. guatemalensis* in Taiwan is improbable.
- R. protensa* Lindenb. — The specimens of *R. protensa* from Taiwan mentioned by Horikawa (1934a) belong to *R. acuminata* (Yamada & Inoue 1988).
- Treubia insignis* Goebel *emend.* R.M. Schust. & Scott — Inoue (1967) supposed that the specimens reported as *T. insignis* from Taiwan belong to *Apotreubia nana*.

Synonyms

- Anastrophyllum acuminatum* (Horik.) N. Kitag. Accepted name: *A. minutum* (Schreb.) R.M. Schust. var. *acuminatum* (Horik.) T. Cao & J. Sun (Gao & Wu 2008).
- Anthoceros amboinensis* Schiffn. Accepted name: *Folioceros amboinensis* (Schiffn.) Piippo (Piippo 1993).
- Anthoceros appendiculatus* Steph. Accepted name: *Folioceros appendiculatus* (Steph.) J. Haseg. (Hasegawa 1986).
- Anthoceros formosae* Steph. Accepted name: *A. angustus* Steph. (Hasegawa 1992).
- Anthoceros fuciformis* Mont. Accepted name: *Folioceros fuciformis* (Mont.) D.C. Bhardwaj (Bharadwaj 1975).
- Anthoceros nagasakiensis* Steph. Accepted name: *A. agrestis* Paton (Stotler & Crandall-Stotler 2003).
- Anthoceros pearsonii* M. Howe. Accepted name: *Phaeoceros pearsonii* (M. Howe) Prosk. (Stotler & Crandall-Stotler 2005).
- Anthoceros verruculosus* J. Haseg. Accepted name: *Folioceros verruculosus* (J. Haseg.) R.L. Zhu & M.J. Lai (present paper).
- Aphanolejeunea angustiloba* Horik. Accepted name: *Colole-*

- jeunea sintenisii* (Steph.) Pócs (Pócs & Bernecker 2009).
Aphanolejeunea grossepapillosa Horik. Accepted name: *Cololejeunea grossepapillosa* (Horik.) N. Kitag. (Pócs & Bernecker 2009).
Aphanolejeunea truncatifolia Horik. Accepted name: *Cololejeunea diaphana* A. Evans (Pócs & Bernecker 2009).
Aplozia caespiticia (Lindenb.) Dumort. — *Jungermannia caespiticia* Lindenb. (Váňa 1974). Accepted name: *Solenostoma caespiticium* (Lindenb.) Steph. (Váňa & Long 2009).
Apometzgeria pubescens (Schränk) Kuwah. Accepted name: *Metzgeria pubescens* (Schränk) Raddi (So 2003b).
Archilejeunea polymorpha (Sande Lac.) B.M. Thiers & Gradst. Accepted name: *Spruceanthus polymorphus* (Sande Lac.) Verd. (Gradstein *et al.* 2002).
Asterella monospiris (Horik.) Horik. Accepted name: *A. wallichiana* (Lehm. & Lindenb.) Grolle (Long 2006).
Asterella yoshinagana (Horik.) S. Hatt. Accepted name: *A. leptophylla* (Mont.) Grolle (Long 2006).
Bazzania oshimensis (Steph.) Horik. Accepted name: *B. tridens* (Reinw. *et al.*) Trevis. (Inoue 1989).
Brachiolejeunea miyakeana Steph. — *Archilejeunea mari-ana* auct. non (Gottsche) Steph. (Verdoorn 1934). Accepted name: *A. planiuscula* (Mitt.) Steph. (Thiers & Gradstein 1989).
Calypogeia trichomanis (L.) Corda. Accepted name: *C. azurea* Stotler & Crotz (Stotler & Crotz 1983).
Caudalejeunea recurvistipula (Gottsche) Schiffn. Accepted name: *Caudalejeunea reniloba* (Gottsche) Steph. (Zhu *et al.* 2011).
Cephalozia otariensis Steph. Accepted name: *C. hamatiloba* Steph. (Váňa 1988, 1993).
Chandonanthus birmensis Steph. — *Temnoma birmense* (Steph.) Horik. (Horikawa 1951). Accepted name: *Plicanthus birmensis* (Steph.) R.M. Schust. (Schuster 2002).
Chandonanthus hirtellus (F. Weber) Mitt. Accepted name: *Plicanthus hirtellus* (F. Weber) R.M. Schust. (Schuster 2002).
Chandonanthus pusillus Steph. — *Temnoma setiforme* (Ehrh.) Howe (Hattori 1948). Accepted name: *Tetralophozia filiformis* (Steph.) Urmí (Urmí 1983).
Cheilelejeunea longiloba (Hoffm.) J.J. Engel & B.C. Tan. — *C. imbricata* (Nees) S. Hatt. (Zhu *et al.* 2002). Accepted name: *C. trapezia* (Nees) Kachroo & R.M. Schust. (Zhu & Grolle 2004).
Chiloscyphus cuspidatus (Nees) J.J. Engel & R.M. Schust. — *Lophocolea cuspidata* (Nees) Limpr. Accepted name: *L. bidentata* (L.) Dumort. (Furuki & Mizutani 2004).
Chiloscyphus fragrans (Moris & De Not.) J.J. Engel & R.M. Schust. Accepted name: *Lophocolea fragrans* (Moris & De Not.) Gottsche *et al.* (Grolle & Long 2000).
Chiloscyphus horikawanus (S. Hatt.) J.J. Engel & R.M. Schust. Accepted name: *Lophocolea horikawana* S. Hatt. (Inoue 1959).
Chiloscyphus latifolius (Nees) J.J. Engel & R.M. Schust. Accepted name: *Lophocolea bidentata* (L.) Dumort. (Grolle & Long 2000).
Chiloscyphus minor (Nees) J.J. Engel & R.M. Schust. Accepted name: *Lophocolea minor* Nees (Inoue 1959).
Chiloscyphus muricatus (Lehm.) J.J. Engel & R.M. Schust. Accepted name: *Lophocolea muricata* (Lehm.) Nees (Grolle 1995).
Chiloscyphus profundus (Nees) J.J. Engel & R.M. Schust. Accepted name: *Lophocolea heterophylla* (Schräd.) Dumort. (Grolle & Long 2000).
Chiloscyphus schiffneri J.J. Engel & R.M. Schust., *nom. illeg.* Accepted name: *Chiloscyphus engelii* R.L. Zhu & M.J. Lai (present paper).
Chiloscyphus semiteres (Lehm.) Lindenb. Accepted name: *Lophocolea semiteres* (Lehm.) Mitt. (Grolle & Long 2000).
Cololejeunea formosana Mizut. Accepted name: *C. ceratilobula* (P.C. Chen) R.M. Schust. (Zhu & So 1998b).
Cololejeunea goebelii (Gottsche ex Schiffn.) Schiffn. Accepted name: *C. trichomanis* (Gottsche) Steph. (Grolle 2001).
Cololejeunea mackeeana Tixier. Accepted name: *C. angustiflora* (Steph.) Mizut. (Zhu & So 2002).
Cololejeunea magnipapillosa (Kamim.) P.C. Chen & P.C. Wu. Accepted name: *C. peraffinis* (Schiffn.) Schiffn. (Zhu & So 2001).
Cololejeunea oshimensis (Horik.) Benedix. Accepted name: *C. inflata* Steph. (Zhu & So 2001).
Cololejeunea peraffinis (Schiffn.) Schiffn., Consp. Hepat. Arch. Ind.: 245. 1898. — *C. peraffinis* fo. *corticola* (Benedix ex Herzog) S.H. Lin, Liverw. Fl. Taiwan: 401. 2000, syn. nov. *Taeniolejeunea peraffinis* (Schiffn.) Zwick. fo. *corticola* Benedix ex Herzog, J. Hattori Bot. Lab. 14: 55. 1955. TYPE: China. Taiwan, Botel Tobago, Am Kamm, ca. 460 m, auf Borke, G.H. Schwabe 123 p.p. (holotype JE!).
Cololejeunea scabriflora Gottsche ex Steph. Accepted name: *C. obliqua* (Nees & Mont.) Schiffn. (Long & Grolle 1990).
Cololejeunea yulensis (Steph.) Benedix. Accepted name: *C. aequabilis* (Sande Lac.) Schiffn. (Zhu 2005).
Drepanolejeunea formosana Horik. — *Stenolejeunea apiculata* (Sande Lac.) R.M. Schust. (Zhu & So 2001). Accepted name: *Lejeunea apiculata* Sande Lac. (Söderström *et al.* 2010).
Drepanolejeunea subacuta (Horik.) H.A. Miller *et al.* Accepted name: *Lejeunea exilis* (Reinw. *et al.*) Grolle (Zhu & Grolle 2003).
Eopleurozia giganteoides (Horik.) Inoue. Accepted name: *Pleurozia subinflata* (Austin) Austin (Thiers 1993).
Folioceros vesiculosus (Austin) D.C. Bharadwaj. Accepted name: *F. fuciformis* (Mont.) D.C. Bharadwaj (Hasegawa 1993).
Fossombronina australi-nipponica Horik. Accepted name: *F. japonica* Schiffn. (Krayesky *et al.* 2005).
Frullania acutiloba Mitt. var. *schiffneri* Verd. Accepted name: *F. monocera* (Hook.f. & Taylor) Taylor var. *schiffneri* (Verd.) S. Hatt. (Hattori 1979a).
Frullania caduca S. Hatt. Accepted name: *F. amamiensis* Kamim. (Yuzawa 2001).
Frullania davurica Hampe subsp. *jackii* (Gottsche) S. Hatt. Accepted name: *F. jackii* Gottsche (Grolle & Long 2000).
Frullania galeata (Reinw. *et al.*) Dumort. Accepted name:

- F. riojaneirensis* (Raddi) Ångstr. (Svihla 1956, Hattori & Lin 1985).
- Frullania jackii* Gottsche subsp. *japonica* (Sande Lac.) S. Hatt. Accepted name: *F. davurica* Hampe (Hattori 1976a).
- Frullania jackii* Gottsche subsp. *japonica* (Sande Lac.) S. Hatt. var. *chichibuensis* Kamim. Accepted name: *F. davurica* Hampe var. *chichibuensis* (Kamim.) S. Hatt. (Hattori 1976a).
- Frullania kagoshimensis* Steph. var. *minor* Kamim. Accepted name: *F. osumiensis* (S. Hatt.) S. Hatt. (Yuzawa 2001).
- Frullania pedicellata* auct. non Steph. Accepted name: *F. muscicola* Steph. (Hattori & Lin 1985).
- Frullania tamarisci* subsp. *moniliata* (Reinw. et al.) Kamim. Accepted name: *F. moniliata* (Reinw. et al.) Mont. (Crandall-Stotler et al. 1987).
- Frullania tamarisci* ssp. *obscura* (Verd.) S. Hatt. Accepted name: *F. moniliata* (Reinw. et al.) Mont. (Crandall-Stotler et al. 1987).
- Frullania tamarisci* ssp. *obscura* var. *balansae* (Steph.) S. Hatt. Accepted name: *F. moniliata* (Reinw. et al.) Mont. (Crandall-Stotler et al. 1987).
- Gottschea aligera* (Nees & Blume) Nees. Accepted name: *Schistochila aligera* (Nees & Blume) J.B. Jack & Steph. (So 2003a).
- Gottschea nuda* (Horik.) Grolle & Zijlstra. Accepted name: *Schistochila nuda* Horik. (So 2003a).
- Gottschea philippinensis* Mont. Accepted name: *Schistochila aligera* (Nees & Blume) J.B. Jack & Steph. (So 2003a).
- Herbertus giraldianus* (Steph.) Nichols. Accepted name: *H. dicranus* (Taylor ex Gottsche et al.) Trevis. (Feldberg & Heinrichs 2005).
- Herbertus longifolius* Horik. Accepted name: *H. dicranus* (Taylor ex Gottsche et al.) Trevis. (Inoue 1977).
- Herbertus pinnatus* (Steph.) H.A. Mill. Accepted name: *H. dicranus* (Taylor ex Gottsche et al.) Trevis. (Juslén 2006).
- Herbertus sakuraii* (Warnst.) S. Hatt. Accepted name: *H. dicranus* (Taylor ex Gottsche et al.) Trevis. (Hodgetts 2003).
- Heteroscyphus bescherellei* (Steph.) S. Hatt. Accepted name: *H. coalitus* (Hook.) Schiffn. (Inoue 1988).
- Jamesoniella autumnalis* (DC.) Steph. Accepted name: *Syzygiella autumnalis* (DC.) Feldberg et al. (Feldberg et al. 2010).
- Jamesoniella nipponica* S. Hatt. Accepted name: *Syzygiella nipponica* (S. Hatt.) Feldberg et al. (Feldberg et al. 2010).
- Jamesoniella pulchra* N. Kitag. Accepted name: *Denotarisia linguifolia* (De Not.) Grolle (Váňa 1991).
- Jubula hutchinsiae* (Hook.) Dumort. subsp. *javanica* (Steph.) Verd. Accepted name: *J. javanica* Steph. (Katagiri et al. 2010).
- Jungermannia appressifolia* Mitt. Accepted name: *Solenostoma appressifolium* (Mitt.) Váňa & D.G. Long (Váňa & Long 2009).
- Jungermannia comata* Nees. Accepted name: *Solenostoma comatum* (Nees) C. Gao (Váňa & Long 2009).
- Jungermannia exsertifolia* Steph. subsp. *cordifolia* (Dumort.) Váňa. Accepted name: *J. exsertifolia* Steph. (Schuster 1988).
- Jungermannia gracillima* Sm. Accepted name: *Solenostoma gracillimum* (Sm.) R.M. Schust. (Váňa & Long 2009).
- Jungermannia hasskarliana* (Nees) Steph. Accepted name: *Solenostoma hasskarlianum* (Nees) R.M. Schust. ex Váňa & D.G. Long (Váňa & Long 2009).
- Jungermannia hyalina* Lyell. Accepted name: *Solenostoma hyalinum* (Lyell) Mitt. (Váňa & Long 2009).
- Jungermannia infusca* (Mitt.) Steph. Accepted name: *Solenostoma infusum* (Mitt.) Hentschel (Hentschel et al. 2007a).
- Jungermannia pseudocyclops* Inoue. Accepted name: *Solenostoma pseudocyclops* (Inoue) Váňa & D.G. Long (Váňa & Long 2009).
- Jungermannia pyriflora* Steph. Accepted name: *Solenostoma pyriflorum* Steph. (Váňa & Long 2009).
- Jungermannia radiculosa* (Mitt.) Steph. Accepted name: *Solenostoma radiculosum* Mitt. (Váňa & Long 2009).
- Jungermannia schauliana* Steph. Accepted name: *Solenostoma schaulianum* (Steph.) Váňa & D.G. Long (Váňa & Long 2009).
- Jungermannia subrubra* Steph. Accepted name: *Solenostoma subrubrum* (Schiffn. ex Steph.) Váňa & D.G. Long (Váňa & Long 2009).
- Jungermannia subulata* A. Evans. Accepted name: *Liochlaena subulata* (A. Evans) Schljakov (Váňa & Long 2009).
- Jungermannia tetragona* Lindenb. Accepted name: *Solenostoma tetragonum* (Lindenb.) R.M. Schust. ex Váňa & D.G. Long (Váňa & Long 2009).
- Jungermannia truncata* Nees. Accepted name: *Solenostoma truncatum* (Nees) R.M. Schust. ex Váňa & D.G. Long (Váňa & Long 2009).
- Jungermannia virgata* (Mitt.) Steph. Accepted name: *Solenostoma virgatum* (Mitt.) Váňa & D.G. Long (Váňa & Long 2009).
- Jungermannia vulcanicola* (Schiffn.) Steph. Accepted name: *Solenostoma vulcanicola* (Schiffn.) Nyushko (Potemkin & Sofronova 2009).
- Lejeunea borneensis* Steph. — *Lejeunea catanduana* (Steph.) H.A. Mill. et al. (Kitagawa 1981). Accepted name: *L. anisophylla* Mont. (Hürlimann 1993).
- Lejeunea catanduana* (Steph.) H.A. Mill. et al. Accepted name: *L. anisophylla* Mont. (Hürlimann 1993).
- Lejeunea cucullata* (Reinw. et al.) Nees. Accepted name: *Metalejeunea cucullata* (Reinw. et al.) Grolle (Grolle 1995).
- Lejeunea obscura* Mitt. — *Taxilejeunea subcompressiuscula* Herzog, Journal of the Hattori Botanical Laboratory 14: 47. 1955, nom. inval., syn. nov. Based on study of the original material, we conclude that this name is a synonym of *Lejeunea obscura*.
- Lejeunea proliferans* Herzog. Accepted name: *L. cocoes* Mitt. (So & Zhu 1998).
- Lejeunea vaginata* Steph. Accepted name: *L. discreta* Lindenb. (Mizutani 1970).
- Lepidozia setacea* auct. Accepted name: *Kurzia pauciflora* (Dicks.) Grolle (Grolle 1963).
- Lepidozia wallichiana* Gottsche. Accepted name: *Telaranea wallichiana* (Gottsche) R.M. Schust. (Schuster 1980).
- Leptolejeunea aberrantia* Horik. Accepted name: *L. truncati-*

- folia* Steph. (Zhu & So 2001).
- Leptolejeunea picta* Herzog. Accepted name: *Leptolejeunea amphiopteralma* Zwischel (Schuster 1984).
- Leptolejeunea radiata* (Mitt.) Steph. Accepted name: *L. maculata* (Mitt.) Schiffn. (Grolle 1976).
- Leptolejeunea schiffneri* (Steph.) Steph. Accepted name: *L. maculata* (Mitt.) Schiffn. (Grolle 1976).
- Leptolejeunea subacuta* A. Evans. Accepted name: *L. elliptica* (Lehm. & Lindenb.) Schiffn. (Mizutani & Hattori 1969).
- Leptolejeunea yangii* M.J. Lai. Accepted name: *Drepanolejeunea foliicola* Horik. (Grolle & Zhu 2000).
- Leucolejeunea paroica* N. Kitag. Accepted name: *Cheilolejeunea kitagawae* W. Ye & R.L. Zhu (Ye & Zhu 2010).
- Leucolejeunea turgida* (Mitt.) Verd. Accepted name: *Cheilolejeunea turgida* (Mitt.) W. Ye & R.L. Zhu (Ye & Zhu 2010).
- Leucolejeunea xanthocarpa* (Lehm. & Lindenb.) A. Evans. Accepted name: *Cheilolejeunea xanthocarpa* (Lehm. & Lindenb.) Malombe (Malombe 2009).
- Lopholejeunea brunnea* Horik. Accepted name: *L. nigricans* (Lindenb.) Schiffn. (Amakawa 1970).
- Lopholejeunea javanica* (Nees) Schiffn. Accepted name: *L. nigricans* (Lindenb.) Schiffn. (Zhu & Gradstein 2005).
- Lopholejeunea muensis* Steph. Accepted name: *L. nigricans* (Lindenb.) Schiffn. (Zhu & Gradstein 2005).
- Lopholejeunea nicobarica* Steph. Accepted name: *L. eulopha* (Taylor) Schiffn. (Zhu & Gradstein 2005).
- Lopholejeunea nipponica* Horik. Accepted name: *L. zollingeri* (Steph.) Schiffn. (Zhu & Gradstein 2005).
- Lophozia cornuta* (Steph.) S. Hatt. Accepted name: *Schistochilopsis cornuta* (Steph.) Konstant. (Konstantinova & Vasiljev 1994).
- Lophozia incisa* (Schrad.) Dumort. Accepted name: *Schistochilopsis incisa* (Schrad.) Konstant. (Konstantinova & Vasiljev 1994).
- Lophozia morrisoncola* Horik. Accepted name: *Leiocolea morrisoncola* (Horik.) Furuki & Mizut. (Furuki & Mizutani 2004).
- Lophozia nakanishii* Inoue. Accepted name: *Schistochilopsis nakanishii* (Inoue) Konstant. (Konstantinova & Vasiljev 1994).
- Macvicaria ulophylla* (Steph.) S. Hatt. Accepted name: *Porella ulophylla* (Steph.) S. Hatt. (Hentschel *et al.* 2007b).
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