

New synonyms in *Plagiochila* (Hepaticae) III

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Abstract – *Plagiochila castellanis* Gottsche ex Steph. and *P. mandonii* Gottsche ex Steph. are excluded from the synonyms of *P. spinulosa* (Dicks.) Dumort. and regarded as conspecific with *P. stricta* Lindenb.; *P. striolata* A. Evans is identified as a further synonym of *P. stricta*.

P. aequifolia Steph. is excluded from the synonymy of *P. micropteryx* Gottsche and is placed in the synonymy of *P. patula* (Sw.) Lindenb.; *P. rara* Gottsche is treated as a synonym of *P. cuneata* Lindenb. & Gottsche.

Plagiochila / synonyms

In recent years, the taxonomy of *Plagiochila* (Dumort.) Dumort. has been the subject of numerous studies (e.g., So, 2001; Heinrichs, 2002a), confirming the presence of many synonyms within *Plagiochila* species. The use of molecular and phytochemical markers (e.g., Groth *et al.*, 2003; Rycroft, 2003) in addition to morphological characters has led to a deeper understanding of the sectional subdivision of the genus and pointed out close relationships between the Neotropical and Atlantic European *Plagiochila* floras. Revisionary studies in the framework of a treatment of the Plagiochilaceae for the series “Flora Neotropica” clarified the status of 3 Neotropical binomials and led to the identification of 2 Madeiran taxa as synonyms of a tropical American species. As in Heinrichs & Renker (2001) and Heinrichs (2002b), the new synonyms are listed and parts of the type material are depicted.

Plagiochila cuneata Lindenb. & Gottsche, in Gottsche *et al.*, *Syn. Hep.*: 632. 1847. **Type:** Mexico, Liebmann (lectotype, designated by Grolle & Heinrichs [1999], C). = *Plagiochila rara* Gottsche, in Triana & Planchon, *Ann. Sci. Nat., Bot.* ser. 5, 1: 100. 1864, **syn. nov.** **Type:** Colombia, Choachi, 2600 m, Lindig *s.n.* (**lectotype, here designated**, G [ster.]).

Groth *et al.* (2002) identified *P. cuneata* as a member of the *P.* sect. *Rutilantes* Carl and discussed the differentiation from the morphologically close *P. loriloba* Herzog ex Carl. Although sparse, the type material of *P. rara* can be identified as belonging to *P. cuneata* because of the presence of coarse, lobe-like apical teeth and median leaf cells with length between 30 and 50 µm. The holotype of *P. rara* at B was destroyed.

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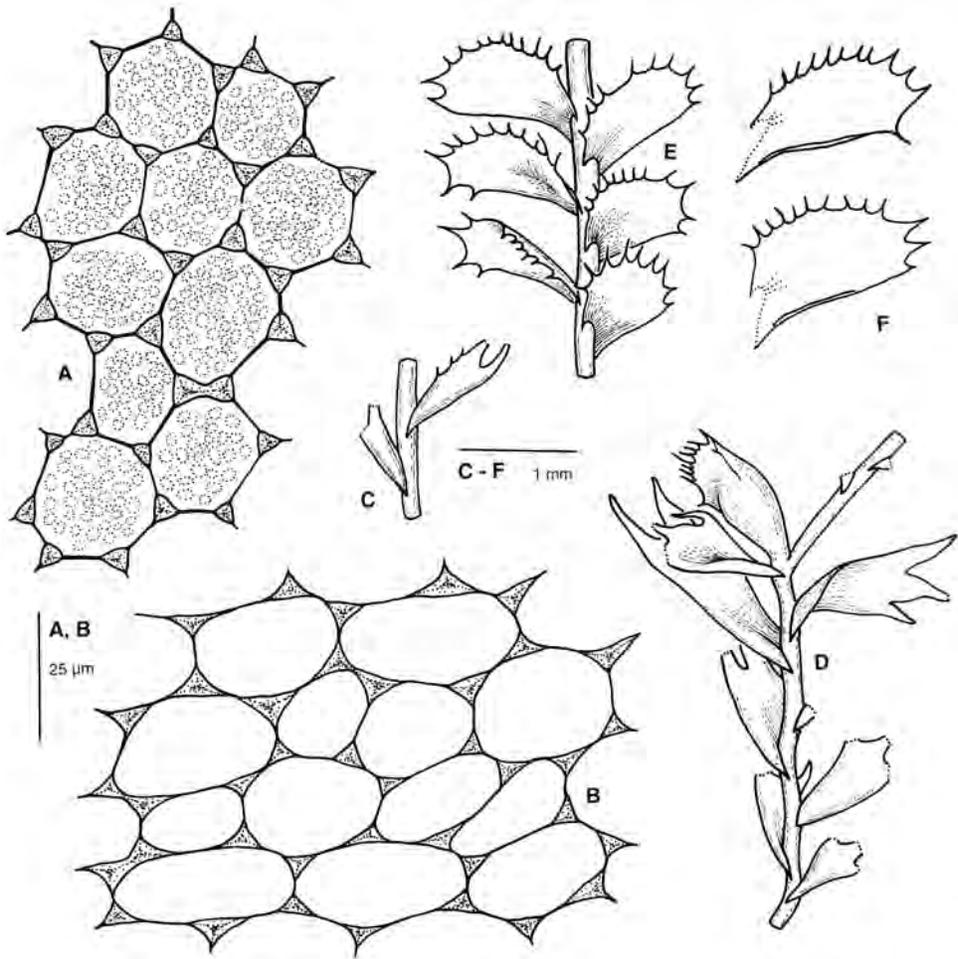


Fig. 1. *Plagiochila cuneata* Lindenb. & Gottsche (B-D) and *P. stricta* Lindenb. (A, E, F): **A**, **B**, cells from leaf center; **C**, part of shoot, dorsal view; **D**, part of female shoot with perianth; **E**, part of shoot, ventral view; **F**, leaves [A from holotype of *P. castellanis* (G), B, C from lectotype of *P. rara* (G), D from isolectotype of *P. cuneata* (W), E, F from lectotype of *P. mandonii* (G)].

Plagiochila patula (Sw.) Lindenb., *Spec. Hepat.* (fasc. 1): 21. 1839.
 = *Plagiochila aequifolia* Steph., *Spec. Hep.* 2: 227. 1902, **syn. nov.** **Type:** Cuba, Wright 348 (holotype, G 18131 [ster.]; isotype, FH [ster.]).

Inoue (1989) erroneously synonymised *Plagiochila aequifolia* with *P. micropteryx* Gottsche, another member of *P.* sect. *Vagae* Lindenb. (Heinrichs *et al.*, 2002). However, *P. micropteryx* differs from *P. patula* by the ventral leaf base which is short to moderately decurrent (*P. patula* often long decurrent) and the shorter and broader stem leaves.

Plagiochila stricta Lindenb., *Spec. Hepat.* (fasc. 1): 20. 1839.
 = *Plagiochila striolata* A.Evans, *Trans. Connecticut Acad. Arts* 18: 311. 1914, **syn. nov. Type:** Peru, Lucma, 2130 m, 07.08.1911, *Foote* 36 (holotype, YU [ster.]).
 = *Plagiochila mandonii* Gottsche ex Steph., *Spec. Hep.* 2: 414. 1904, **syn. nov. Type:** Madeira, *Mandon* 4 (lectotype, designated by Grolle & Schumacker [1982], G 20910/a [ster.]).
 = *Plagiochila castellanis* Gottsche ex Steph., *Spec. Hep.* 6: 138. 1918, **syn. nov. Type:** Madeira, *Castello s.n.* (holotype, G 12022 [ster.]).

Rycroft *et al.* (2002) have demonstrated the occurrence of the Neotropical *Plagiochila stricta* Lindenb. on Tenerife and discussed the morphological differences between *P. stricta* and the closely related European *P. spinulosa* (Dicks.) Dumort. Two binomials from Madeira, *P. mandonii* and *P. castellanis*, which were placed in the synonymy of *P. spinulosa* by Grolle & Schumacker (1982), proved to belong to *P. stricta* because of the presence of ciliate teeth on the ventral leaf base and leaves that lie more or less flat and spread out. The cuticle of *P. castellanis* is strongly and densely papillose, a character found more frequently in *P. stricta* than in *P. spinulosa*.

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REFERENCES

- GROLLE R. & HEINRICHS J., 1999 — Redescription and synonymy of *Plagiochila aerea* Taylor 1846 (Hepaticae), first described as *Lycopodium pinnatum* by Lamarck 1792. *Nova Hedwigia* 68: 511-525.
- GROLLE R. & SCHUMACKER R., 1982 — Zur Synonymik und Verbreitung von *Plagiochila spinulosa* (Dicks.) Dum. und *P. killarniensis* Pears. *Journal of Bryology* 12: 215-225.
- GROTH H., HELMS G. & HEINRICHS J. 2002 — The systematic status of *Plagiochila* sects. *Bidentes* Carl and *Caducilobae* Inoue (Hepaticae) inferred from nrDNA ITS sequences. *Taxon* 51: 675-684.
- GROTH H., LINDNER M., WILSON R., HARTMANN F.A., SCHMULL M., GRADSTEIN S.R. & HEINRICHS J. 2003 — Biogeography of *Plagiochila* (Hepaticae): natural species groups span several floristic kingdoms. *Journal of Biogeography* 30: 965-978
- HEINRICHS J., 2002a — A taxonomic revision of *Plagiochila* sect. *Hylacoetes*, sect. *Adiantoideae* and sect. *Fuscoluteae* in the Neotropics with a preliminary subdivision of Neotropical Plagiochilaceae into nine lineages. *Bryophytorum Bibliotheca* 58: 1-184, Append. 1-5.
- HEINRICHS J., 2002b — New synonyms in *Plagiochila* (Hepaticae) II. *Cryptogamie, Bryologie* 22: 247-250.
- HEINRICHS J. & RENKER C., 2001 — New synonyms in *Plagiochila* (Hepaticae). *Cryptogamie, Bryologie* 23: 351-353.
- HEINRICHS J., SAUER M. & GROLLE R., 2002 — Lectotypification and synonymy of *Plagiochila* sect. *Vagae* Lindenb. (Hepaticae). *Cryptogamie, Bryologie* 23: 5-9.
- INOUE H., 1989 — Notes on Plagiochilaceae, XVI. Studies on some *Plagiochila* species in the Neotropics. *Bulletin of the Natural Science Museum, Tokyo, Ser. B*, 15: 35-47.
- RYCROFT D.S., 2003 — Chemosystematics and the liverwort genus *Plagiochila*. *Journal of the Hattori Botanical Laboratory* 93: 331-342.
- RYCROFT D.S., COLE W.J., HEINRICHS J., GROTH H., RENKER C. & PRÖSCHOLD T., 2002 — Phytochemical, morphological and molecular evidence for the occurrence of the Neotropical liverwort *Plagiochila stricta* in the Canary Islands, new to Macaronesia. *The Bryologist* 105: 363-372.
- SO M.L., 2001 — *Plagiochila* (Hepaticae, Plagiochilaceae) in China. *Systematic Botany Monographs* 60: 1-214.