A lectotype for Macromitrium cirrosum Hedw.) Brid. (Orthotrichaceae)

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Abstract

A lectotype for Anictangium cirrosum Hedw. [Macromitrium cirrosum (Hedw.) Brid.] is designated herein from among the material on the single herbarium sheet bearing this name in the Hedwig-Schwägrichen herbarium (G). Lectotypification is necessary as the 11 specimens present on the sheet have different geographic and temporal origins, and represent two different taxa (M. cirrosum and M. scoparium Mitt). Hedwig's A. cirrosum was based on the pre-1801 Hypnum cirrosum Sw., proposed by Swartz, and four specimens collected by Olof Swartz from Jamaica as well as material from Montserrat are included on Hedwig's original herbarium sheet in G. With reference to Hedwig's protologue and original illustrations, a lectotype was selected from among these specimens. Probable duplicates of the Swartz material were located in NY and S.

Reference


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A lectotype for Macromitrium cirrosum (Hedw.) Brid. (Orthotrichaceae)

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Keywords: Macromitrium cirrosum, Lectotype, Hedwig, Mosses, Orthotrichaceae

Introduction

Species muscorum frondosorum (Hedwig, 1801) is the designated starting point for the nomenclature of mosses, excepting the Sphagnaceae (Article 13, McNeill et al., 2012). Although Hedwig described 84 new taxa in this work (see Price & Ellis, 2011), the other names originated from earlier works. These were considered as invalid until their publication in Species muscorum frondosorum, whereupon they were ascribed to Hedwig (see discussion in Dixon, 1932; Florschütz, 1960; Margadant, 1968). As a consequence, the specimens in Hedwig’s herbarium (Hedwig-Schwägrichen herbarium, G) upon which his validating descriptions were based became synonyms (see Geissler, 2000). The Hedwig part of the Hedwig-Schwägrichen collection is an important source of material that is critical for ensuring the correct application of a number of early moss names (see discussion in Geissler, 2000; Price, 2005).

In Species muscorum frondosorum (Hedwig, 1801), seven species are described under the name Anictangium Hedw., which was later rejected in favour of the conserved name Anoectangium Schwägr. (McNeill et al., 2006). Over time Hedwig’s Anictangium species were transferred to six other genera in five different families, see Table 1. Three taxa were of European origin (A. aquaticum Hedw., A. ciliatum Hedw., and A. lapponicum Hedw.), whereas the remainder were non-European, collected from ‘Insulae australis’ (A. bulbosum Hedw., A. planifolium Hedw., and A. setosum Hedw.) or the Caribbean (A. cirrosum Hedw.). The Caribbean plants were collected in part by Olof Peter Swartz (1760–1818), whereas those originating from ‘Insulae australis’ were likely collected by Archibald Menzies (1754–1842), see discussions in Touw (1971), Fife (1996), and Kruijer (2002).

The name Anictangium cirrosum, nomenclaturally dating from Hedwig (1801), was based on the pre-Hedwigian name Hypnum cirrosum of Swartz (1788) who described it from material he collected in Jamaica between 1783 and 1787. In an initial short diagnosis, Hedwig (1801) defined A. cirrosum by its creeping habit, branching pattern, linear-lanceolate leaves that were revolute in a dry state, turbinate capsule urns, mucronate opercula, and mirtate calyptrae. He then reiterated the short diagnosis of Hypnum cirrosum by Swartz (1788) and cited the localities ‘Jamaica, Monserrat’. Two Caribbean localities (Jamaica and Montserrat) are also given on the specimen sheet in the Hedwig herbarium marked ‘Anictangium cirrhosum’ [G00040187] (Figure 1). Below this in the protologue, Hedwig gave an expanded description of A. cirrosum as follows:

Procerior planta decumbendo repens, rami erectis subdivis. Folia lineari-lanceolata, integerrima, ductulorum fasciculo ad apicem usque percursa, siccate incurva, recurva, varie flexa. Pedunculi mediocres, palud. Sporangia turbinata. Opercula
convexo-rostellata, rostello recto. Sic reperi in exemplis ex insula Montserrat, peristomio omnino destitutis Hedwig (1801: 42).

Hedwig’s illustration of this species (Hedwig, 1801: Tab. V, f. 1–3) depicts a life-size portion of a stem with a single sporophyte as well as magnified illustrations of an operculate capsule and a leaf (Figure 2). No capsule completely lacking a peristome was seen in the Hedwig material examined on sheet G00040187 (Figure 1, specimens 1–4). However, any specimens in this collection with a peristome (such as plants 2 and 4 on sheet G00040187) could tentatively be suggested to originate from Jamaica rather than Montserrat. The origin of the reference to the material from Montserrat, and the collector of this material, remains obscure. Swartz (1788) does not mention material from this locality and no other source is cited in the protologue or on the label of the original herbarium sheet in G.

On the single herbarium sheet for Anictangium cirrosum (= M. cirrosum) in G (Figure 1 — G00040187) the label is, in part, written in the hand of Hedwig, referring to ‘Hypnum cirrhosum’ Swartz and indicating the presence of material from ‘Jamaica, Montserrat’. Sheet G00040187 was further annotated by Schwägrichen (Figure 1), to indicate that plants 1–3 represented Hedwig’s A. cirrhosum while plants marked with the letter ‘b’ were from Menzies, ‘St. Vincent’ and Menzies, s. loc., (Figure 1). Examination of all the material on the sheet revealed the presence of two species: Macromitrium cirrosum and M. scoparium Mitt.

Macromitrium scoparium was described much later by Mitten (1869) based on material from Jamaica. It is morphologically somewhat similar to M. cirrosum but differs in its larger plant size and in having elongate upper leaf cells that often form a variously developed border, and leaf margins mostly denticulate to at least half way down the leaf. The upper laminal cells of M. cirrosum are mostly irregular-rounded and its leaves lack a border of elongate marginal cells; the margin may be slightly toothed at the apex but teeth do not extend down the margin. Both species are quite variable and in need of taxonomic investigation (Allen, 2002). The information given in Hedwig’s protologue of M. cirrosum

Table 1 Species described under Hedwig’s ‘Anictangium’ in his 1801 publication Species muscorum frondosorum, with their current name

<table>
<thead>
<tr>
<th>Basionym</th>
<th>Page, Figure</th>
<th>Origin</th>
<th>Label handwriting</th>
<th>Current name</th>
<th>Family</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. aquaticum</td>
<td>41, none</td>
<td>European</td>
<td>Schwägrichen</td>
<td>Cinclidotus aquaticus</td>
<td>Cinclidotaceae</td>
</tr>
<tr>
<td>A. ciliatum</td>
<td>40, none</td>
<td>European</td>
<td>Hedwig (annot. Schwägrichen)</td>
<td>Hedwigia ciliata (Hedw.)</td>
<td>Hedwigiaeae</td>
</tr>
<tr>
<td>A. cirrosum</td>
<td>42, Tab. V. f. 1–2</td>
<td>Caribbean</td>
<td>Hedwig (annot. Schwägrichen)</td>
<td>Macromitrium cirrosum (Hedw.) Br.</td>
<td>Orthotrichaceae</td>
</tr>
<tr>
<td>A. lapponicum</td>
<td>40, none</td>
<td>European</td>
<td>Hedwig</td>
<td>Amphiocladium laponicum (Hedw.) Schimp.</td>
<td>Orthotrichaceae</td>
</tr>
<tr>
<td>A. planifolium</td>
<td>44, Tab. VI</td>
<td>Australasian</td>
<td>Material not in G, see Fife (1996)</td>
<td>Hedwigia ciliata (Hedw.)</td>
<td>Hedwigiaeae</td>
</tr>
<tr>
<td>A. setosum</td>
<td>43, Tab. V. f. 4–6</td>
<td>Australasian</td>
<td>Schwägrichen</td>
<td>Cyrtopus setosus (Hedw.) Hook. f.</td>
<td>Cyrtopodaceae</td>
</tr>
</tbody>
</table>

Note: For each taxon, information on the page and figures from Hedwig (1801) are given alongside the geographic origin of the specimen. An indication of the handwriting that appears on the labels of the G herbarium specimens is given. When specimens are not present in G, the literature citation is given.
does not allow for the separation of these two taxa (Hedwig, 1801).

The establishment of a lectotype for the over 200-year-old moss name *Anictangium cirrosum* Hedw. [= *Macromitrium cirrosum* (Hedw.) Brid.] is desirable given that this entity pre-dates Hedwig’s (1801) publication and as material of two different species is present on the original Hedwig herbarium sheet. Suitable original material for typification of Hedwig’s *Anictangium cirrosum*, as defined by the International Code of Nomenclature for algae, fungi and plants (McNeill et al., 2012, Art. 9.2 and 9.3), consists of the material from Jamaica or Montserrat on the Hedwig herbarium sheet in G, duplicates of these specimens (e.g. original Swartz material from Jamaica and that from Montserrat), and Hedwig’s original illustration of this species (Hedwig, 1801: Tab. V). A lectotype must be selected from among these elements, with reference to Hedwig’s protologue and original drawings.

A Lectotype for *Anictangium cirrosum*

Given their age and historical importance, the Hedwig specimens can be considered as oligotypes *sensu* Huhtinen (1994). All material on sheet G00040187 was examined, with minimal manipulation, in order to establish the identity of each specimen (specimens 1–11, Figure 1). In accordance with Huhtinen’s recommendations, the designated type material has been annotated and the designated material has been illustrated herein (Figure 3).

Of the 11 specimens present on sheet G00040187, only four (Figure 1, specimens 1–4) are considered to represent original Hedwig material. These four specimens consist of *Macromitrium cirrosum* (Figure 1, specimens 1 and 2) and *M. scoparium*. (Figure 1, specimens 3 and 4), as currently circumscribed. The remainder of the material on sheet G00040187 was collected by Menzies, probably between 1791 and 1794, when he served in the Royal Navy in the West Indies as the naturalist aboard the HMS Discovery. The material annotated ‘St. Vincent’ includes both *M. cirrosum* (Figure 1, specimen 8) and *M. scoparium* (Figure 1, specimens 6 and 9). Two specimens annotated as ‘c. var. longifolia Menzies’, but of an unknown origin, are both *M. scoparium* (Figure 1, specimens 7 and 10). The un-annotated specimen (11), identified as *M. cirrosum*, located below specimen 8 from St. Vincent appears to be linked to it. A second ambiguous specimen (5), identified as *M. scoparium*, is un-annotated and of uncertain origin but, given its position on the herbarium sheet, also appears to be linked to the Menzies material marked ‘b’. The plants collected by Menzies were presumably attached to the sheet by Schwägrichen at a later date for comparative purposes, either when he was completing Hedwig’s 1801 work for publication or working on his own supplements to *Species muscorum frondosorum* (see Price & Ellis, 2011). Material collected by Menzies from St. Vincent is not mentioned in the protologue and so it can be concluded that it was not seen by Hedwig when describing this taxon (Hedwig, 1801). These latter plants (specimens 5–11) must be excluded from the
definition of the original material suitable for lectotypification.

Swartz’s original herbarium is in S where two specimens corresponding to the protologue were located (B91510 and B118402). Fliesschütz (1964: 226) previously indicated the presence of a type for *Anictangium cirrosum* in NY, although the designation of this type was not specified. A single specimen collected by Swartz from Jamaica has been located in NY (00633770). The specimens in S and NY constitute possible duplicate material, although they were not necessarily seen by the validating author of the species. A specimen from BM collected by Swartz in Jamaica and labelled as *Macromitrium cirrosum* (BM000862650) was examined and found to be *Macromitrium scoparium*.

Of the four specimens on sheet G00040187 that were most likely seen by Hedwig (Figure 1, specimens 1–4), specimens 1 and 2, determined as *Macromitrium cirrosum* were most likely seen by Hedwig (Figure 1, specimens 226) previously indicated the presence of a type for *Macromitrium cirrosum*. Specimen 1 on sheet G00040187 clearly corresponds to Hedwig’s illustration of this taxon (Hedwig, 1801: Tab. V, f. 1) and the protologue description. It is thus the most unequivocal material to serve as lectotype.

*Anictangium cirrosum* Hedw. in Sp. Musc. Frond. 42. 5 f. 1–3. 1801.

= *Hedwigia cirrosum* (Hedw.) Brid. in J. Bot. (Schrader) 1800(1): 272. 1801.


= *Schlotheimia cirrosa* (Hedw.) Brid. in Muscol. Recent. Suppl. 2: 19. 1812.

= *Orthotrichum cirrosum* (Hedw.) Hook. & Grev. in Edinburgh J. Sci. 1: 130. 6. 1824.

= *Macromitrium cirrosum* (Hedw.) Brid. in Bryol. Univ. 1: 316. 1826.

*Protologue citation:* Jamaica, Montserrat.

*Lectotype (designated here):* Jamaica, sin. coll., s.n., G (G00040187. Hb. Hedwig-Schwägrichen). First stem on the left of the upper row (specimen 1, Figure 1) on herbarium sheet G00040187 labelled ‘*Anictangium cirrhosum* Spec. Musc. p.42. t.5. f.1-3.* Hypnum cirrhosum* Swartz. Prodr. p.142. [b. St. Vincent Menzies c. var. longifolia Menzies] Jamaica, Montserrat.’ The handwriting of Schwägrichen is indicated using square brackets.

*Probable duplicate material:* Jamaica, *Swartz s.n.*, S (S — B91510, B118402); Jamaica, *Swartz s.n.*, NY (NY00633770). Not examined.

**Acknowledgements**

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**Taxonomic Additions and Changes:** Nil.

**References**


