

The basionym of *Eucladium verticillatum* (Pottiaceae)

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Evidence is provided that the first person to validly publish a name for the species that Linnaeus termed “*Bryum verticillatum*” in 1753 was Withering in 1801, and that his name actually constitutes the basionym of the well-known moss name, correctly cited as *Eucladium verticillatum* (With.) Bruch & Schimp. (Bryophyta, Pottiaceae). “*Weissia verticillata* (Hedw.) ex Brid.” of 1801, which has hitherto been considered the basionym of this binomial, is a *nomen nudum*; the combination *Weissia verticillata* was validly published by Bridel in 1806. *Bryum verticillatum* With. is lectotypified here with a specimen from Cumberland, England, that is preserved at BM.

KEYWORDS: Bryophyta, Dillenius, *Eucladium*, Hedwig, Linnaean name, nomenclature, Pottiaceae, typification.

Eucladium is a monotypic moss genus of Pottiaceae, which was established by Bruch & Schimper (in Bruch & al., 1846) for *E. verticillatum*, a species that in the early bryological literature was named *Weissia verticillata* (e.g., Bridel, 1801, 1806; Schwägrichen, 1811), *Grimmia verticillata* (e.g., Turner, 1804; Smith, 1804; Weber & Mohr, 1807), and *Coscinodon verticillatus* (Bridel, 1826). This species has been known since the beginnings of bryology, and was described and illustrated by Dillenius (1741) who gave the phrase-name *Bryum pilosum verticillatum* to the specimens collected by R. Richardson in York, England, and S. Brewer near Bangor, Wales, in Britain (Lindberg, 1883). In addition, he also cited, in synonymy, Ray’s (1724) *Bryum trichodes brevifolium, angustis cauliculis, capitulis erectis parvis & minus aduncis*, which seems to be the first recognition of this species. Dillenius’ phrase name was used in the binomial combination *Bryum verticillatum* by Linnaeus (1753) who cited the Dillenian page number and figure. For the subsequent half-century it remained a neglected and forgotten species, and it is missing from Hedwig’s (1801) *Species Muscorum Frondosorum*, the starting point for moss nomenclature (*Sphagnum* excepted).

In modern bryology there are serious differences of opinion regarding the post-1 January 1801 validation of “*Bryum verticillatum*”, and consequently the basionym of *Eucladium verticillatum* is variously cited. Following *Index Muscorum* (Wijk & al., 1962), currently considered an authoritative source of nomenclatural information for mosses, it is generally accepted in most Floras, catalogues and checklists that the basionym of *E. verti-*

cillatum is “*Weissia verticillata* (Hedw.) ex Brid.”, as if the name of the species were first validated in *Weissia* by Bridel (1801) on the basis of a pre-1801 publication by Hedwig. On the other hand, Podpěra (1954) in his *Conspectus Muscorum Europaeorum*, which is still a real mine of information on early moss names, listed *Grimmia verticillata* Sm. as the basionym of this name, indicating that Smith (1804) was the first to provide a validly published name for the Linnaean “*Bryum verticillatum*”. We carefully checked the facts and found that neither of these names can be considered as the basionym of *Eucladium verticillatum*.

Bridel (1801) provided only the name “*Weissia verticillata* Hedw.”. The ascription of this name to Hedwig might have been interpreted as an indirect reference to a pre-1801 Hedwigian work in which this species might have been described or a reference to an earlier description could be given. Hedwig published a good number of scientific works (Wissemann, 2000), four of which are fundamental treatments and are considered as the foundations of modern bryology. A careful search through all major bryological works of Hedwig (1782, 1784, 1787–1797) revealed that this species was completely unknown to him and that he never used the names *Bryum verticillatum* or *Weissia verticillata*. Thus, “*W. verticillata*” in Bridel (1801) is a *nomen nudum*.

The earliest publication of a name for the species in the post-1 January 1801 period was actually by Withering (1801) who validated *Bryum verticillatum* by providing a description and citing the Dillenian figure. If one goes back from the references that Bruch & al. (1846) mention under *Eucladium verticillatum*, via

Weissia verticillata Brid. 1806, one can arrive, by devious paths, at Withering's name.

In connection with establishing the basionym of *Bryum verticillatum*, the question of typification of this early moss name was considered. Withering (1801) provided a short diagnosis followed by a brief description of the species. From close analysis it is rather obvious that he heavily relied on Dillenius' (1741) description. Withering's is simply an English version of the Latin description given by the latter author and reads: "Grows in dense tufts [*Denso nascitur caespite*]. Stem slender, adhering closely together, about an inch high [*cauliculis tenuibus uncialibus, arcte cohaerentibus*]; branched [*in ramos aliquot divisus*]. Leaves hair-like, fine pale-green, towards the bottom of the plant whitish [*Folia autem capillacea sunt, colore in superiori surculorum parte pallide & laete viridi, in inferiori obsolete albicante*]. Fruit-stalks numerous, short, pale, terminating. Capsules small, roundish, greenish [*Setae breves pallide in summis surculis capsulas ferunt parvas subrotundas, subvirentes*]. Lid very small, red, pointed [*operculo exiguo rubello, in cuspidem tenuem desinente*]". The only missing word in the Latin description of Dillenius in this portion of Withering's account is information on the number of the setae. However, it is present in the last sentence of his text [*Setis & capsulis abundat & plures*]. It is probable that "Dill." at the end of the description by Withering may indicate that it was taken from Dillenius.

Withering (1801) gave a direct reference to the illustration in Dillenius (1741) and mentioned the two localities from that work, Yorkshire and Bangor in Britain. In addition, he cited "Dickson h.s." and this is a direct reference to Dickson's *Hortus Siccus Britannicus*, a set of his exsiccata preserved at BM. It is possible that Withering has had also his own specimen(s) when writing a description of *Bryum verticillatum*. According to TL-2 (Stafleu & Cowan, 1988), his original herbarium is now held at BM with further material scattered in various herbaria including LINN. Unfortunately, no Withering's material of *B. verticillatum* has been located at BM (L. T. Ellis, personal communication, 25 Jan 2005) and LINN (Ch. Jarvis, personal communication, 1 Feb 2005). Because there is no evidence that Withering studied the specimens preserved in the Dillenius herbarium prior to publication of *B. verticillatum*, the mention of two sites given by Dillenius (1741) in the validating diagnosis of this species by Withering (1801) is not a citation of specimens but merely a range statement.

The only possibilities of lectotypification of *Bryum verticillatum* that would be in accordance with Art. 7.7 of the current Code (Greuter & al., 2000) are selection of the illustration of Dillenius (1741), or a specimen seen by Withering (1801) when writing his diagnosis and description. Even although Withering apparently relied

heavily on Dillenius, the latter's illustration does not show any microscopic details of the leaves and the peristome, which are essential for the correct identification of this species. Therefore we select the specimen from Dickson's exsiccata, which perfectly fits the current concept of *Eucladium verticillatum*.

Accordingly, the correct citation of the basionym of *Eucladium verticillatum* and the lectotype of this name are as follows:

Eucladium verticillatum (With.) Bruch & Schimp. in Bruch, Schimp. & W. Gümbel, Bryol. Eur. 1: 93, pl. 40. 1846 [Fasc. 33–36 Mon.: 3, pl. 1]. ≡ *Bryum verticillatum* With., Syst. Arr. Brit. Pl. Ed. 4, 3: 804. 1801 (26 Dec). ≡ *Grimmia verticillata* (With.) Turner, Muscol. Hibern. Spic.: 31. 1804. ≡ *Weissia verticillata* (With.) Brid., Muscol. Recent. Suppl. 1: 121. 1806. ≡ *Coscinodon verticillatus* (With.) Brid., Bryol. Univ. 1: 374. 1826. ≡ *Mollia verticillata* (With.) Lindb., Musci Scand.: 21. 1879. ≡ *Tortula verticillata* (With.) Mitt. in Hemsley, Rep. Challenger, Bot. 1(2): 89. 1885. – Type citation: Dicks. h. s.-Dill. 47.35 [Lectotype (selected here): "No. 19. *Bryum verticillatum*. Rocks, Cumberland. Dickson's Hor.[tus] Sicc.[us] Brit.[annicus]"; BM-000855574!].

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