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# Fixing the application of the generic name *Naematelia* (*Tremellales*) by lectotypification

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## Abstract

The place of publication and typification of the generic name *Naematelia* is discussed, and *N. encephala* is confirmed as the correct name of the type species of the genus. That name was a replacement name for the earlier *N. encephaliformis*, which is lectotypified by a Willdenow plate; as selection of an epitype cannot be justified at present, a sequenced specimen from Sweden is selected as a reference specimen to represent the molecular application of the name in our sense. As the name *N. encephala* is a sanctioned name, it must be retained over *N. encephaliformis*. The species is fungicolous, widespread, growing mainly on *Stereum sanguinolentum* on conifers, but also reported on deciduous trees.

**Keywords:** *Basidiomycota*, epitypification, fungicolous fungi, *Stereum*, *Tremella*.

## INTRODUCTION

In the course of molecular phylogenetic studies on fungi in *Tremellales*, it became clear that the application of the generic name *Naematelia* was unclear. This issue needed to be resolved in order to enable this name to be taken up for a distinctive clade within the order which has been recognized in recent phylogenetic studies (Liu & al. 2015, 2016). It emerged that it was necessary to first clarify which species was the type species of the genus, and secondly to determine how that species name should be typified, and if necessary to typify it.

## LECTOTYPIIFICATION OF THE GENERIC NAME

The generic designation first appeared in the literature in Fries' contribution to Liljeblad (1816: 608) as "*Næmatelia*" for two species, *N. encephala* and *N. fragiformis*, but with no separate generic diagnosis and no references to previous works; the name was consequently not validly published in that work (Art. 38.1). Valid publication of the name dates from Fries (1818: 370) who provided a separate diagnosis, and included two species: (1) *N. encephala* based on "*Tremella encephala* - Pers.

sy. p. 623. Willd. in Bot. Magaz. 1<sup>1</sup>. p. 17. p. 4, f. 14"; and (2) *N. tubiformis* which was newly described.

Three species were included in the sanctioning work (Fries 1822: 227): (1) *N. encephala*; (2) *N. rubiformis* Fr. (almost certainly a *lapsus* for *N. tubiformis*, which is not otherwise mentioned); and (3) *N. nucleata* (Schwein.) Fr.

Lloyd (1922: 1149) might at first be considered as having selected *N. encephala* as the type species when he stated ", . . . the type species *Naemataelia encephala*". His intention is, however, unclear as he went on to treat *N. encephala* in a new section of the genus, *Encephala*, and use the sectional name *Naematelia* for *N. nucleata* and *N. globulus* Corda. Donk (1958a: 236) took this use of the sectional name to suggest Lloyd had apparently taken *N. nucleata* as type, but as that was not one of the species originally included when the name was introduced in 1818, that selection must be discarded. The first definite choice was that of Clements & Shear (1931: 342), who selected *N. encephala*, which was one of the two original species, and also one of the three species included in the sanctioning work. That lectotypification was accepted by Donk (1958a: 236; in Farr & al. 1979: 1143) and we see no reason to reject that choice.

Another generic name involved is *Encephalium* Link (1816: 33), based on *E. aurantiacum* Link, and indicated as a synonym of *Naematelia* by Fries (1822). Link included the single species *E. aurantiacum* Link, which was a replacement name for *Tremella encephala* Pers. (itself a replacement name for the earlier *T. encephaliformis* Willd.). As noted by Donk (1958a, b), this means that *Encephalium* and *Naematelia* are typonyms (homotypic synonyms). As Fries' genus included the type species of *Encephalium* in 1818, by the inclusion of *T. encephala*, *Naematelia* would be a superfluous name to be rejected as illegitimate under Art. 52.1. As *Naematelia* was adopted in the sanctioning work, however, that name can be retained for use and the earlier unsanctioned *Encephalium* treated as a homotypic synonym.

***Naematelia*** Fr., Observ. mycol. 2 : 370. 1818 : Fr., Syst. mycol. 2: 227. 1822.

LT: *N. encephala* (Pers.) Fr. (selected by Clements & Shear, Gen. fung.: 342. 1931).

(≡) *Encephalium* Link in Mag. Ges. Naturf. Fr. Berlin 7: 3. 1816.

Several orthographic variants of Fries' name are detailed in Donk (1958a): *Naematella*, *Nematelia*, *Nematella*, and *Nemathelium*. For information on those variants, the reader should refer to his paper.

## LECTOTYPIIFICATION OF THE TYPE SPECIES

In introducing the name *Tremella encephala*, Persoon (1801: 623) referred to Willdenow's plate but did not cite his binomial as a synonym. This name would nevertheless normally be regarded as superfluous and to be rejected as the type of another name was cited in the protologue (Art. 52.2). This is not the case, however, as Persoon's epithet was adopted by Fries in the sanctioning work (Art. 15.1). The plate is part of the original material and so available for lectotypification. Willdenow's material was collected on *Pinus sylvestris* near Berlin ("*In truncis Pini sylvestris inter Bützow & Pegel prope Berolinum hymene passim*"). No original material could be located in B by the first author and R. Lücking, and any that was formerly present would have almost certainly been destroyed in World War II as no fungi remain amongst the remnants of Willdenow's material that still exists in B.

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<sup>1</sup> This was a *lapsus* as this paper is in vol. 4 part 1, and not vol. 1 of the journal cited.

We also found that there was no material under the name *Tremella encephala* amongst Persoon's collections under that name in L (R. Bijmoer, pers. com.) which might have been a candidate lectotype if it could be established as having been studied by Persoon before 1801. Persoon's name, which can be retained over that of Link's as it was sanctioned by Fries (1822), has to be lectotypified by the Willdenow illustration as that is the only original material known to be extant.

In the Willdenow plate the host, which is normally *Stereum sanguinolentum*, is not visible. The basidiomes are typically a combination of a fleshy-fibrous core formed of host hyphae – surrounded by a gelatinous outer layer, which corresponds to the actual tremellalean fungus. The internal core was recognized as a key feature of the fungus by Lloyd (1922). The restriction of the name to the tremellaceous element is in accordance with Bandoni's (1961) interpretation, but it is not necessary to specify an element in the Willdenow figure as a lectotype as host tissues are not evident. Lectotypification by Willdenow's plate is therefore effected here.

As the macroscopic features shown in the lectotype plate leave no doubt about the application of the name, and there is currently no evidence of cryptic speciation, selection of an epitype cannot be unequivocally justified under the current Art. 9.8. In order to leave no doubt about our application of the name, however, both on the basis of microscopic and molecular data, we follow Ariyawansa & al. (2014) in selecting a Reference Specimen (RefSpec) for that purpose. If an epitype becomes justifiable in future, and no modern specimen from the Berlin area can be obtained, the RefSpec collection from Sweden could be considered a candidate for a future epitypification.

Roberts (1999) provided microscopic details of the fungus, but was under the impression that the name was invalid as a *nomen confusum* as it was based on the fungus and its host. However, that statement is not correct, as while names based on discordant elements were to be rejected under the *Code* up to 1975, that provision was deleted at the Leningrad congress in 1975 (Stafleu & al. 1978: 57).

***Naematelia encephala* (Pers.) Fr., Observ. mycol. 2 : 370. 1818 : Fr., Syst. mycol. 2: 227. 1822.**

(=) *Tremella encephala* Pers., Syn. meth. fung. : 623. 1801.

(=) *T. encephaliformis* Willd. in Bot. Mag. (Römer & Usteri) 4 (1): 17. 1788.

(=) *Encephalium aurantiacum* Link in Mag. Gesell. Naturf. Freunde Berlin 7: 3. 1816.

LT: Willdenow (in Bot. Mag. (Römer & Usteri) 4 (1): tab. 4 fig 14. 1788, **lectotype designated here**; MBT 371955).

RefSpec: SWEDEN. Uppland: Österåker-Östra Ryd, Åkersberga, "Röllingby backar", parasitic on *Stereum sanguinolentum* on cut branches of *Pinus sylvestris* on the ground, 7 Feb. 1988, Å. Strid 18486 (S - F169949, **reference specimen selected here**; GenBank accession number: KU680964).

Willdenow's plate and the element designated as lectotype are shown in Figs 1-2, respectively, while the reference specimen is illustrated in Fig. 3

For information on possible further synonyms see Bandoni (1961), Donk (1966) and Lloyd (1922).

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