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## *Tricholomopsis flammula* of Upper Austria\*

I. KRISAI-GREILHUBER & H. VOGLMAYR

**A b s t r a c t :** A new find of *Tricholomopsis flammula* in Upper Austria is described and illustrated. Ecology and delimitation of the species are discussed. It is very similar to *Tricholomopsis rutilans* but differs macroscopically in the smaller size of the carpophore, the stipe colour and the minuteness of the pileus scales and microscopically in the shape of the cheilocystidia and the numerous pleurocystidia.

**Key w o r d s :** *Tricholomopsis flammula*, mycobiota of Upper Austria.

### Introduction

The Kleine Kesselbachtal is located in one of the biologically most interesting regions of Upper Austria, the River Danube region between Passau and Aschach. Here, the River Danube has formed a deep valley in the Moldanuvian Granite/Gneiss plateau, which supports various different vegetation types from small dry meadows and thermophilous forests on the exposed southern slopes to hygrophilous gorge forests in the narrow, deep valleys of the small tributaries of the River Danube. Coming from the Sauwald-plateau, the Kleine Kesselbachtal is one of these biologically highly interesting tributary valleys rich in rare plant and animal species, which is also acknowledged by the recent declaration as a nature preserve. Due to the steep slopes, forest management has been comparatively extensive, which, together with high humidity supports fruiting of common but also of rare macromycetes. Thus, from this site a find of the rare species *Hohenbuehelia cyphelliformis* (BERK.) O.K. MILLER could already be reported (KRISAI-GREILHUBER 1994). Further, the junior author found the poorly known species *Tricholomopsis flammula*, which is described here in detail.

### Description and comments

#### *Tricholomopsis flammula* METROD

*Tricholomopsis flammula* METROD, Rev. Mycol. Paris 11: 77. 1946. Figs. 1-2.

#### C h a r a c t e r s :

Pileus: 1.5-2.5 cm, young convex, old flat expanded, sometimes weakly depressed and centre flat umbonate, young margin inrolled and finely pubescent, older margin sharp, surface a bright yellow ground with very small, brittle and short scales, these only near

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\* Dedicated to Konsulent Prof. FRANZ GRIMS on the occasion of his 70th birthday.

the centre of pileus a bit larger, scales bright wine red to purple red, thereby strongly contrasting to the yellow ground, older also dull red.

Lamellae: narrowly adnate to almost free, crowded, narrow to ventricose, with slightly crenulate edge, lemon yellow to dull yellow.

Stipe: 3-4.5 x 0.2-0.4 cm, cylindrical, sometimes slightly bent, young lemon yellow, pale yellow, later dull yellow, faintly longitudinally striate by appressed fibrills, no scales and thus no reddish colours, solid.

Context: firm, pale yellow, dull yellow, no smell, mild.

Spore print: white.

Spores: 5.8-6.6 x 3.3-4.2  $\mu\text{m}$ ,  $Q = 1.5-1.7$ , ellipsoidal to broad ellipsoidal, thin-walled, smooth, non-amyloid.

Basidia: 25 x 6  $\mu\text{m}$ , 4-spored, cylindrical to narrow clavate.

Cheilocystidia: 33-60 x 20-24  $\mu\text{m}$ , broad clavate to sphaeropedunculate, often fasciculate, thin-walled.

Pleurocystidia: 41-54 x 8-10  $\mu\text{m}$ , lageniform to fusiform, with strongly light-refracting, yellowish contents (reminding of chrysocystidia), somewhat thick-walled, numerous.

Clamp connexions present in all parts of the carpophore.

**Material examined:** Austria, Upper Austria, district Schärding am Inn, comm. Waldkirchen/Wesen, Kleines Kesselbachtal bei Wesenufer, mapping grid square 7548/2, leg. H. VOGLMAYR, 3.11.1991, det. I. KRISAI-GREILHUBER and A. HAUSKNECHT, WU 10478.

**Habitat and ecology of the Upper Austrian collection:** river-side forest on valley bottom, on the ground under old apple trees of an abandoned orchard at the banks of the Kleine Kesselbach, surrounded by spruce forest, shady and humid, growing solitary.

**Distribution:** presently known from North America (SMITH 1960) and Europe. In East Austria two other collections, one from Lower Austria (WU 12087) and one from Styria (WU 12075) are known.

**Selected illustrations:** CETTO (1979: no. 1010), COURTECUISSÉ & DUHEM (1994: no. 418), MOSER & JÜLICH (1985-: III *Tricholomopsis* 1).

**Comments:** *Tricholomopsis flammula* is macroscopically characterized by its small carpophores, the yellow stipe without reddish scales, the very fine and short pileus scales, microscopically by the broad clavate to sphaeropedunculate cheilocystidia, the presence of numerous pleurocystidia and rather narrow spores.

The species concept of *T. flammula* is controversial. MOSER (1983) and BON (1991) consider it as a species on its own. According to BON (1991) it differs from *T. rutilans* by slightly smaller and narrower spores [6-8 x 3.5-5  $\mu\text{m}$  vs. (6.5-)7-8.5(-9) x (5-)5.5-6(-6.5)  $\mu\text{m}$ ], smaller carpophores, shorter cheilocystidia and the numerous pleurocystidia. MOSER (1983) keys it out as having very small carpophores, naked stipe and narrower spores (6.5-8 x 3.7-4.7  $\mu\text{m}$  vs. 7-8 x 5-6  $\mu\text{m}$ ). SMITH (1960) gives only a single record of this species and states that it may have been passed by as a depauperate *T. rutilans* and further indicates that from his observations it may be that the two species intergrade. BOEKHOUT & NOORDELOOS (2000) include it as a mere variant in their very broad species concept of *T. rutilans*. They state that in the Netherlands typical *T. rutilans* had spores and cheilocystidia that fit well within the limits of *T. flammula*.

In our opinion it is a species which can be separated already macroscopically in the field. Its habit is different from that of a small *T. rutilans*. Even when it is small, the carpophores are much more delicate, not so stout, the stipe is thinner and lacks any reddish tinges. Further the pileus scales of *T. flammula* are finer and smaller than in a small specimen of *T. rutilans*. As the two species have a similar appearance, *T. flammula* may well have been overlooked and mistaken for a small *T. rutilans*.

Ecologically it is a saprotrophic organism either growing on very rotten stumps of mostly coniferous trees, but more typically on wood debris and even terricol. In the latter case the mycelium may be connected to subterranean wood remains. It is rare to very rare, but has a wide distribution in Europe, for which COURTECUISE & DUHEM (1994) list the following countries: Austria, Belgium, France, Germany, Italy, Romania and Slovenia.

### Zusammenfassung

Ein neuer Fund von *Tricholomopsis flammula* aus Oberösterreich wird beschrieben und illustriert. Ökologie und Abgrenzung der Art werden diskutiert. Sie ist *Tricholomopsis rutilans* sehr ähnlich, unterscheidet sich jedoch makroskopisch durch die kleineren Fruchtkörper, die andere Stielfarbe und die viel zarteren Hutschuppen, mikroskopisch durch anders geformte Cheilozystiden und die zahlreichen Pleurozystiden.

### Acknowledgement

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Address of the authors: Irmgard KRISAI-GREILHUBER & Hermann VOGLMAYR  
Institute of Botany  
University of Vienna  
Rennweg 14  
A-1030 Wien, Austria

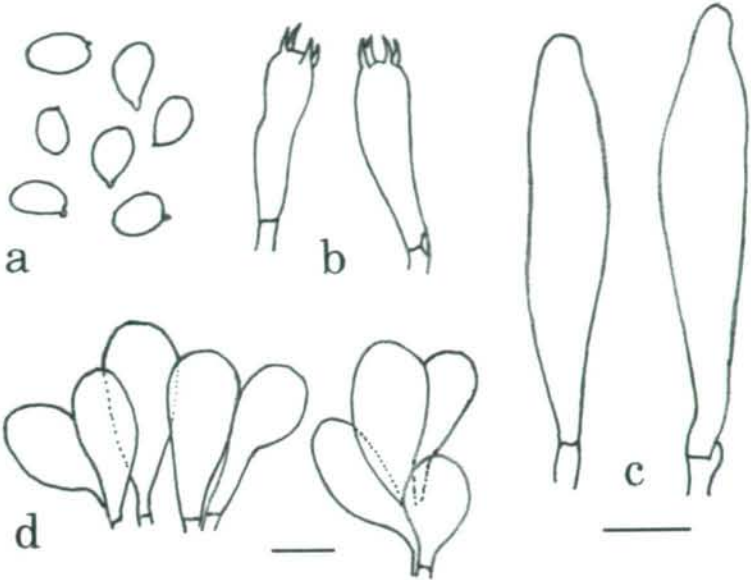


Fig. 1. *Tricholomopsis flammula* WU 10478. a – Spores, b – basidia, c – pleurocystidia, d – cheilocystidia, bars: a-c 10  $\mu$ m, d 20  $\mu$ m



Fig. 2. *Tricholomopsis flammula* WU 10478, habit; phot. A. Hausknecht

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Autor(en)/Author(s): Krisai-Greilhuber Irmgard, Vogelmayr Hermann

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