

## ***Tatraea dumbirensis*, new records of a rare leotialean discomycete in Europe**

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**Abstract:** The rare ascomycete *Tatraea dumbirensis*, hitherto known from the Czech Republic, Germany, Great Britain and Slovakia, is recorded from Austria, Croatia, France, Spain and Switzerland, and described and illustrated in detail. It is an example of a fungus preferably occurring in mountainous virgin forests and thus it is a species highly endangered of extinction. The new combination *Tatraea macrospora* and a key to the world taxa of *Tatraea* are provided.

**Zusammenfassung:** Der seltene Ascomycet *Tatraea dumbirensis*, der bisher aus Deutschland, Großbritannien, der Slowakei und Tschechien bekannt ist, wurde in Österreich, Kroatien, Frankreich, Spanien und der Schweiz gefunden. Er wird detailliert beschrieben und illustriert. Dieser Pilz bevorzugt als Habitat montane naturnahe Wälder und ist dadurch stark gefährdet. Die neue Kombination *Tatraea macrospora* und ein Schlüssel zu den Welttaxa von *Tatraea* werden vorgeschlagen.

In Austria, natural and undisturbed mountainous deciduous woods are rare. One of them, the Urwald Großer Neuwald at the Lahnsattel Pass in Lower Austria, is a typical Abieti-Fagetum with many old beeches, firs and some spruce. The peculiarity of this locality is the fact that the mature trees are allowed to become very old and to fall naturally at the end of their life-span, rotting afterwards where they have fallen. There is no forest management at all. The only negative influence is the high stock of game - a common feature in Austria - which graze, especially during winter, on the tree shoots and thus hinder the development of young trees. For several years, this locality has been quite regularly visited by members of the Austrian Mycological Society and a

future product will be a mycoflora of the Lahnsattel. In autumn 1995, during an excursion with university students of the third author's (IK-G) mycological course, a small greyish discomycete was found on one of the fallen twigs. Part was sent to the fifth author (JTP) for identification and it appeared to be the lignicolous "*Ciboria*" *dumbirensis* (VELEN.) SPOONER, which is a rare species in Europe and to our knowledge has not been recorded in Austria before. A single apothecium was sent by JTP to Dr B. SPOONER (K) for confirmation.

Meanwhile, as IK-G was preparing an article reporting this interesting record, she was advised by JTP that he and the second author (RGM) were planning a similar project for Spain but he had also recognized this species in a part collection by the fourth author (NM), and also understood that the first author (HOB) knew of further European finds. So we decided to work all together, compiling the taxonomical, systematical, ecological and chorological data available, which appears in this paper as the fruit of this joint European participation.

It is worthy of mention that the Spanish samples were found also in a very special relict place: the most meridional forest of beeches in Europe.

In the montane region of Croatia, NM, together with a colleague, has made seasonal (except in winter) intensive discomycetological research in fir-beech and spruce forests since 1989. In 1998, the second record of *T. dumbirensis* in Croatia was made, also originating from a small area of fir-beech virgin forest.

### Materials and methods

Light microscopic examination, i.e. squash preparations and sections, both hand and cut on a Pelcool freezing microtome, were examined in Lugol's solution (IKI), Melzer's reagent (MLZ), KOH 2%, tap water, aqueous cresyl blue (CRB), and cotton blue (CB). Provided measurements refer either to dead elements (†, i.e. using such lethal media as MLZ or KOH), or to living elements (\*, in water). Microscopic drawings were made by HOB and NM (both free hand). The micrographs were taken by RGM using a Nikon Labophot-2 phase-contrast microscope providing up to 1250 magnifications. PDA cultures were obtained by mass spore deposits from fresh apothecia collected in Spain by RGM. The material is deposited in the herbaria AH (Alcalá University), REG (Herbarium University of Regensburg), WU (Vienna University), the private herbaria of HOB (H.B.), JTP (J.T.P., with a duplicate in K), C. M. SWART-VELTHUIJZEN, K. WÖLDECKE, in the fungarium KRIEGLSTEINER (PH Schwäbisch Gmünd) and in the private fungarium of NM (N.M.). MTB = Meßtischblatt (Central European mapping system). Numbers in {} indicate the number of collections tested for a given character.

### Results

*Tatraea dumbirensis* (VELEN.) SVRČEK, Česká Mykol. **46**: 161, 1993. (Figs. 1-10, Colour figs. I-III)

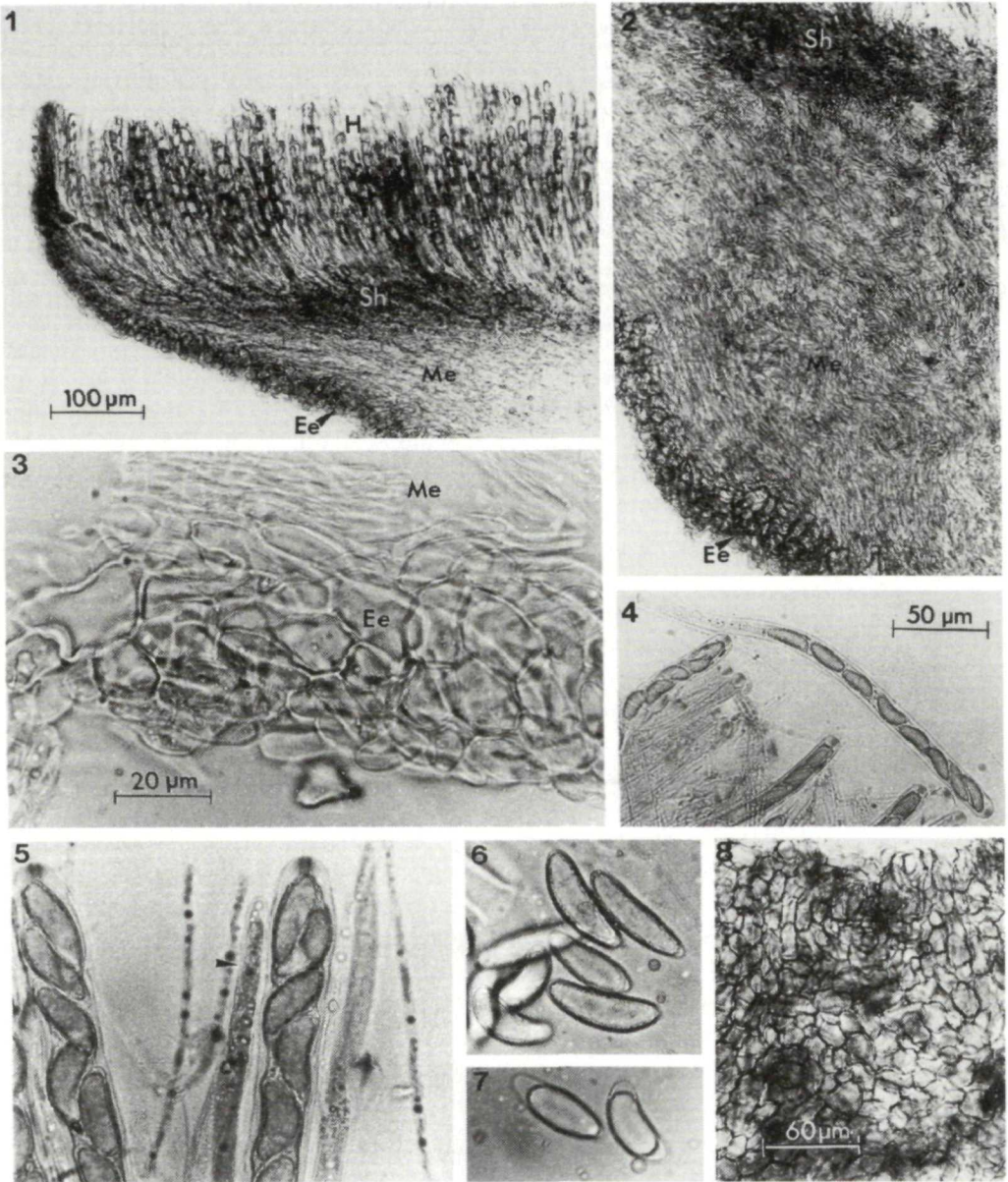
= *Helotium dumbirensis* VELEN., Mon. Disc. Bohem.: 188, 1934.

= *Ciboria dumbirensis* (VELEN.) SPOONER, Trans. Brit. Mycol. Soc. **91**: 517, 1988.

= *Lanzia dumbirensis* (VELEN.) K. WÖLDECKE, Die Großpilze Niedersachsens und Bremens, Naturschutz und Landschaftspflege in Niedersachsen **39**: 277, 1998.

### Characters:

**Apothecia** scattered to gregarious, (1-)2-6(-8) mm diam. {10}, 1-4 mm high, flat cupulate and shortly stipitate; disk flat to slightly depressed, fresh pale greyish to mostly



Figs. 1-8. *Tatraea dumbirensis*. (1-7. from AH 6128, 8. from AH 6129). 1. Vertical section of apothecium near the margin. 2. Vertical section of apothecial flanks. 3. Details of the ectal excipulum and outer layer of the medullary excipulum. 4. Asci. 5. Asci and paraphyses (arrow). 6, 7. Dead spores. 8. Frontal view of the ectal excipulum. Scale bars are also valid as follows: fig. 1 for fig. 2, fig. 3 for figs. 5, 6 and 7. (media: H<sub>2</sub>O for figs. 1 and 2; MLZ for figs. 3-7; KOH for fig. 8). Abbreviations: H hymenium, Sh subhymenium, Ee ectal excipulum, Me medullary excipulum. - Phot. RGM.

very pale flesh-coloured (cream-brownish-grey), drying ochraceous to dark brown, margin of larger apothecia somewhat undulating, outside concolorous or paler than disk, with some violaceous-brownish tint, ochraceous-brown when dry, smooth, stipe short, 0.8-2 mm long, 0.9-2 mm thick {3}, central or a bit eccentric, cylindrical or slightly tapering, pale brownish-grey, ochraceous brown to brown when dry, fine tomentose under a lens, scarcely immersed in the substrate. No dark stromatic tissue present. **Medullary excipulum** well developed, consisting of hyaline, loose hyphae (cells \*70-150 {1} x 2.3-7.6 {5}  $\mu\text{m}$  diam.) mainly forming a *textura intricata* ca. 750-950  $\mu\text{m}$  thick {1} but becoming a *textura porrecta* ca. 55-65  $\mu\text{m}$  thick {1} at contact with the outer layer; the walls are covered by a thin gel staining deep violet in CRB, but the consistency is non-gelatinous. **Ectal excipulum** very sharply delimited but relatively thin (ca. 30-75  $\mu\text{m}$  thick), of a vertically oriented *textura globulosa-angularis*, hyaline to feebly pigmented, cells 8-30  $\mu\text{m}$  diam., moderately thick-walled, strongly adherent, outermost cell can be smaller, with only 3.0-8.6(-10.4)  $\mu\text{m}$  diam. {1}. Margin of a *textura prismatica* 25-34  $\mu\text{m}$  thick {1} oriented at a low angle, with inner cells cylindrical, 3.5-10.5  $\mu\text{m}$  diam. {1} and outermost cells protruding as 1-2-celled "hyphoid hairs" {6} \*6.0-9.5  $\mu\text{m}$  diam. {1} externally. **Stipe** distinctly two-layered. Outer layer composed of *textura globulosa* to *globulosa-angularis*, \*43-55  $\mu\text{m}$  thick {1}; cells \*8.5-20.0  $\mu\text{m}$  diam. {1}. Inner layer of *textura porrecta*; hyphae cylindrical, running parallel to the surface, \*3.0-9.5  $\mu\text{m}$  diam. {1}. **Stromatic tissues** absent. **Subhymenium** indistinguishable from the medullar part, apart from the light brownish colour and the highly intricate texture. **Asci** \*(150-)180-208 x (9.5-)12.5-15.8  $\mu\text{m}$  {6}, †145-188 x 9-12  $\mu\text{m}$  {4}, 8-spored, cylindrical, tapering at base and emerging from croziers {10}, apex round to truncate, with an apical thickening \*1.4-1.7  $\mu\text{m}$  thick, †4-7.5  $\mu\text{m}$  thick, containing a large ring reacting deep blue (euamyloid, type BB) in both IKI and MLZ (not KOH-pretreated) {10}, ring apically extending by slightly amyloid zones {8}. **Ascospores** \*(14.0-)17-23(-28) x 5.8-7.5(-8.8)  $\mu\text{m}$  {9}, †(14-)15-20(-25) x 5-7.3 {2}, fusoid ellipsoid, mostly strongly curved (reniform and also obscurely helioid), inequilateral, smooth, hyaline, uniseriate, subbiserial and one-celled when inside living asci, 1(-2)-septate and remaining hyaline when old (sometimes with a yellowish-ochraceous plasma when dead), sometimes already germinated on the apothecium without budding conidia, densely multiguttulate {13} by many small lipid bodies (1-2  $\mu\text{m}$  diam.) in the living state which appear as one, two or more large guttules when dead (after coalescence). **Paraphyses** straight or slightly curved above, hyaline, slightly shorter than living asci, filiform, terminal cell \*48-72 x 2.5-3.5  $\mu\text{m}$  {5}, distantly septate (lower cells \*24-33 x 1.5-2.5  $\mu\text{m}$  {1}), simple or branched below; living apical cell filled with large, globose vacuolar bodies of very low refraction {7} (staining light turquoise-blue in CRB, IKI), and some minute refractive lipid bodies.

**Collections examined: Austria:** Lower Austria, district Lilienfeld, community St. Aegydt/Neuwalde, Lahnsattel Pass, Großer Neuwald Forest Nature Reserve near the small village of Donaudörfel, 1050 m s. m., geological stratum: Werfener Schichten, on a rotten twig of *Fagus sylvatica* L., 29. 9. 1995, leg. H. VOGLMAYR, det. JTP, confirm. B. M. SPOONER; herbaria WU 18114, dupl. in J.T.P. 4888 and K (M) 32170. - Upper Austria, district Steyr, Steinbach, MTB 8051/2, 500 m s. m., in a ditch, on wood of *Fagus sylvatica*, 21. 8. 1993, leg. K. HELM, det. HOB, no voucher.

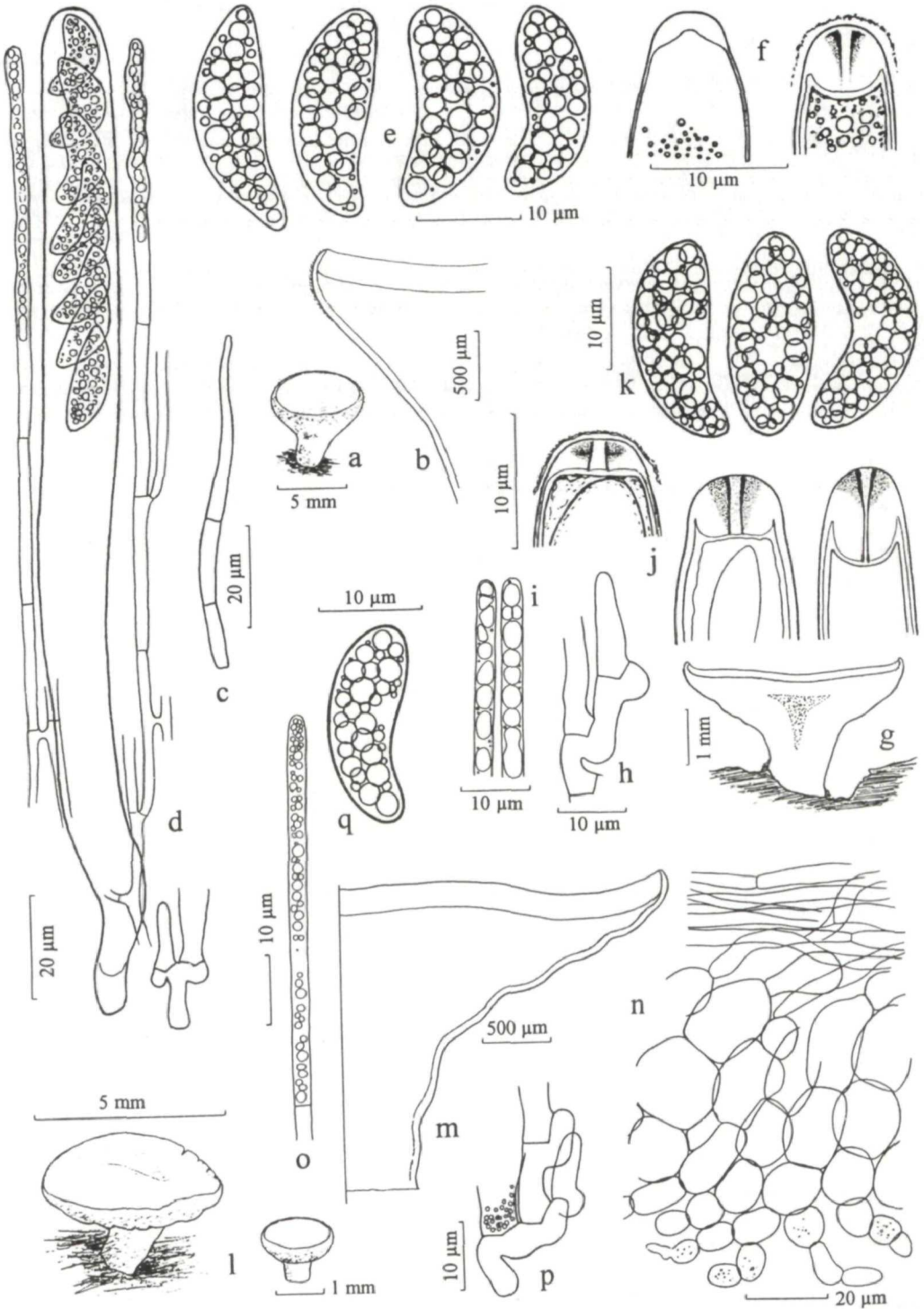


Fig. 9. *Tatraea dumbirensis*. a, l fresh apothecia. b, g, m radial sections of apothecia. n radial section of lower flanks of ectal excipulum. c marginal hair. d living mature ascus, paraphyses. f (left) apex of living immature ascus, f (right), j apices of dead asci (in IKI). d, h, p clamp connections (croziers) at the ascus base. i, o tips of paraphyses. e, k, q ascospores. H.B. 5577: a-f; H.B. 3504: g-k; H.B. 3080: l-q; del. HOB. All parts in living state (except for IKI-stained ascus apices).

**Croatia:** North-western Croatia, Puntijarka peak, Medvednica Mt., 1400 m SW from Rauhova lugarnica, 780 m s. m., on root of a log of a very old *Fagus sylvatica* in acidophilous fir-beech forest, 9. 9. 1990, leg. N. MATOČEC & D. MRVOŠ, det. JTP; fungarium N.M. 1357, dupl. in J.T.P. 4973. - Gorski kotar, Šimungrad area ca. 2000 m SE of Mirkovica peak, 1020 m s. m., on decorticated trunk of a very old *Fagus sylvatica* in basiphilous fir-beech forest, 10. 10. 1998, leg. N. MATOČEC & D. MRVOŠ, det. N.M. (as *Rutstroemia* cf. *macrospora*, rev. as *T. dumbirensis*), fungarium N.M. 4035.

**France:** W of Valence, between Pradelles and St.-Cirgues-en-Montagne, 1100 m s. m., in a rivulet, on wood of *Fagus sylvatica*, 20. 9. 1990, leg. C. M. SWART-VELTHUIJZEN, det. HOB, herbarium SWART-VELTHUIJZEN. Department Hautes Vosges, Gérardmer, NNE of Hohneck, Le Tanet, Tourbière du Tanet, MTB 7908/1, 1200 m s. m., geological stratum: granite, pure old *Fagetum*, on wood of *Fagus sylvatica*, 30. 9. 1991, leg. J. DENY, det. HOB, no voucher. - Idem, on wood of *Fagus sylvatica*, 3. 9. 1996, J. DENY, R. COLLOT, M. LANGLOIS & HOB, H.B. 5577.

**Germany:** Bayern, National Park Bayerischer Wald, Regen, Zwieseler Waldhaus, Nature Reserve Mittelsteighütte, MTB 6945/2, 900 m s. m., on decorticated *Fagus* wood, 5. 9. 1994, leg. L. G. KRIEGLSTEINER, det. HOB, fungarium KRIEGLSTEINER 633K94. - Idem, Spiegelau, Waldhäuser, Lärchenberg, S-slope of Rachel, MTB 7046/3, 890 m s. m., *Fraxinus*-mixed wood with *Actaea* and *Mercurialis*, on wood of *Fraxinus excelsior* L., 27. 7. 1989, leg. N. LUSCHKA, HOB & E. WEBER, H.B. 3817. - Idem, on wood of *Fagus sylvatica*, 30. 7. 1988, leg. N. LUSCHKA, H.B. 3504 (dupl. in REG). - Sonthofen, E of Oberjoch, Grundbach above Iseler Hütte, MTB 8428/3, 1150 m s. m., on wood (?and bark) of *Fagus sylvatica*, 30. 9. 1978, leg. & det. HOB, H.B. 2412. Baden-Württemberg, district Reutlinger Alb, E of Udingen, N of Hochfleck, MTB 7621/1, 820 m s. m., geological stratum: Jura-Malm, Elymo-Fagetum, on wood of *Fagus sylvatica*, 17. 9. 1989, leg. HOB & E. WEBER, H.B. 3847. Niedersachsen, S of Hameln, SE of Glesse, S-slope of Unterberg, 200 m s. m., geological stratum Muschelkalk, MTB 4022/3, *Fraxinus*-carr, on wood of *Fagus sylvatica*, 27. 9. 1989, leg. K. WÖLDECKE, det. HOB, H.B. 4164 (dupl. in WÖLDECKE 742.89).

**Spain:** Segovia, Riofrío de Riaza, Puerto de la Quesera, 1600 m s. m., on rotten wood of *Fagus sylvatica*, 16. 10. 1979, leg. J. CHECA, G. MORENO & J. L. MANJÓN, det. JTP & RGM, AH 6087; - Idem, 31. 10. 1980, leg. J. CHECA & G. MORENO, det. RGM, AH 6128 (dupl. in J.T.P. 4891), AH 6129 & AH 6130; - Idem, 4. 11. 1998, leg. & det. RGM, AH 7216 (dupl. in J.T.P. 4972).

**Switzerland:** Schweizer Jura, Biel, Nature Reserve Bellelay, MTB 8708/2, 930 m s. m., border of a raised bog, on wood of *Betula*, 13. 9. 1986, leg. P. BLANK & HOB, det. HOB, H.B. 3080 (now empty).

**Habitat and distribution:** on rotten wood of decorticated, thin branches or large trunks of *Fagus sylvatica*, rarely *Fraxinus excelsior* or *Betula*, lying on moist ground or protruding from water, in pure or mixed, moist, shady, predominantly montane, natural beech-fir forests with or without spruce on both acidophilous and basiphilous soils, also in *Aceri-Fraxinetum* (=Schluchtwald) according to WÖLDECKE (1998), fruiting in autumn (VII-IX in Central Europe, IX-X in Croatia and X-XI in Spain). The species was hitherto known only from the Czech Republic, Germany, Great Britain and Slovakia.

## Discussion

This inconspicuously coloured small discomycete was first described and illustrated as *Helotium dumbirensis* by VELENOVSKÝ (1934) based on a specimen collected by K. CEJP 1930 on Dumbier in the Nízke Tatry mountains. SVRČEK (1985) revised all those species described by VELENOVSKÝ in *Helotium*. He corrected the latter's ascospore measurements and placed *H. dumbirensis* in synonymy with "*Rutstroemia*" *macrospora* (PECK) KANOUSE, a common species in North America, Australia and eastern Asia, which is now included in the genus *Ciboria*, as *C. peckiana* (COOKE) KORF (*Sclerotiniaceae*). SPOONER (1988) examined a specimen from Wales labelled as *Rutstroemia macrospora*, collected by S. C. PORTER, and two further collections from

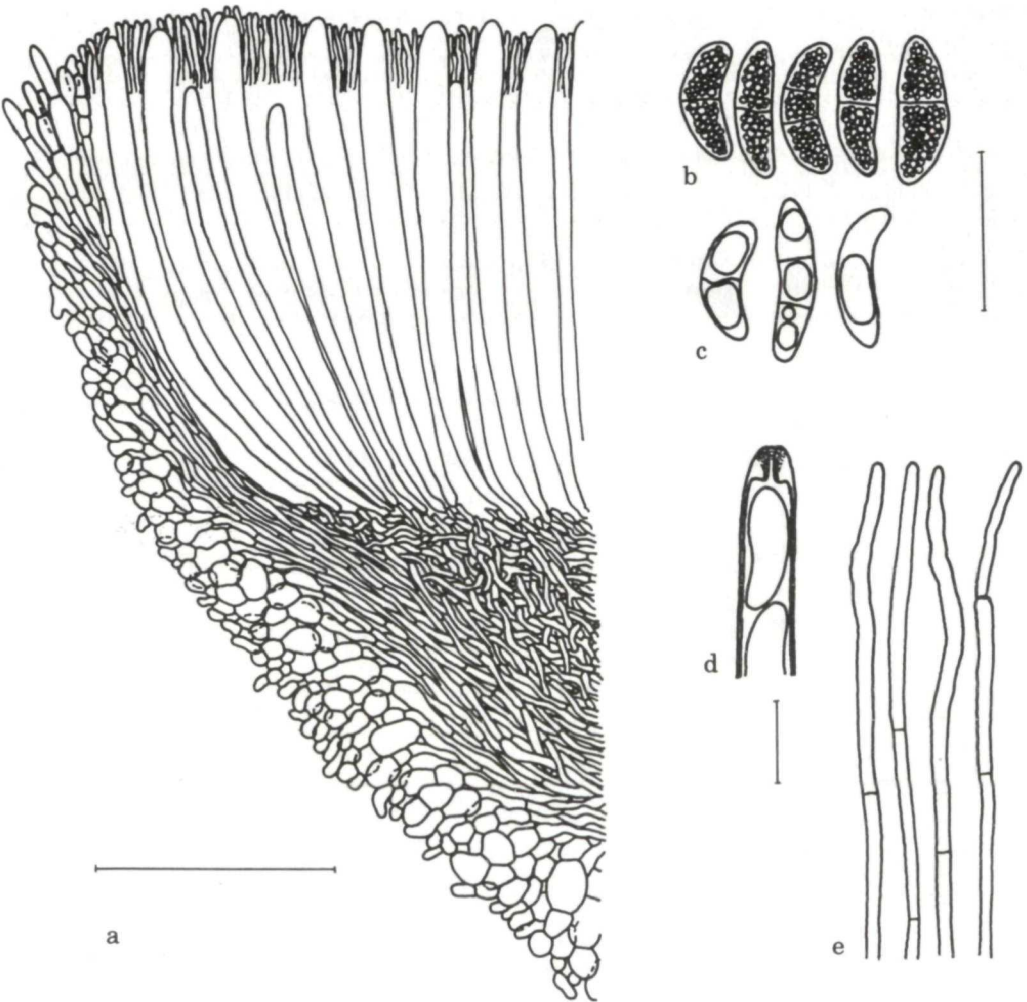


Fig. 10. *Tatraea dumbirensis*, N. M. 1357; *a* vertical median section of an apothecium, *b* living ascospores from spore print, *c* dead ascospores from spore print, *d* dead mature ascus apex in MLZ (not KOH pretreated), *e* apices of paraphyses; del. NM.

Slovakia made by R. W. G. DENNIS. He concluded that the European material is clearly different from the typical *C. peckiana* (although very close) and transferred *Helotium dumbirensis* to the genus *Ciboria* as *Ciboria dumbirensis*. Here and in SPOONER (1987: 306) he considered both species as clearly belonging in the *Sclerotiniaceae*, with a most close relationship with the lignicolous *Ciboria bolaris* (BATSCH: FR.) FÜCKEL. In 1993, SVRČEK reconsidered his concept of *Rutstroemia macrospora* based on the ex-

amination of ten collections from the Czech Republic and Slovakia. He also found the European collections to be distinct from the species of PECK. He did not adopt the placement in *Ciboria* (apparently he was unaware of SPOONER's paper) but erected the new monotypic genus *Tatraea*, based on *Helotium dumbirensis*, morphologically distinct by an apothecial structure different from all described genera and comprising three distinct layers: a thick, dark-coloured hypothecium of isodiametric cells, a medullary excipulum of hyaline textura intricata and an ectal excipulum of globose or angled light brownish cells. Although SVRČEK (1993) never discussed its exact taxonomical position, the genus *Tatraea* apparently belongs in the *Leotiaceae* (cf. HAWKSWORTH & al. 1995), considering that he placed it close to the genus *Hymenoscyphus* S. F. GRAY (= *Helotium* ss. auct.) („probabiliter ex affinitate generis *Hymenoscyphus*“). The combination in *Lanzia* by WÖLDECKE (1998) was made without mentioning any characters. This placement is problematic since the ectal excipulum in *Lanzia* is a textura porrecta oriented horizontal to the surface.

Currently, however, generic delimitation in ascomycetes is quite in flow and taxonomic placements change quickly. Accepting that DNA/RNA sequences are a reliable method to get information about real taxonomic affinities, we are currently studying such sequences and compare them with those of typical *Leotiaceae* and *Sclerotiniaceae*. However, JTP studied isolates on PDA from nine living apothecia from Spain (AH7216 = J.T.P. 4972) for evidence of a stroma. Development, which was slow at ambient temperatures, appeared as a whitish surface growth with no sign of any subsequent darkening. Microscopic examination found a tangled web of hyaline but no coloured hyphae ca. 1-2 µm diam. This adds substance to the view that *Tatraea dumbirensis* does not belong to the *Sclerotiniaceae*.

Meanwhile, we agree with its taxonomical position in the *Leotiaceae* (cf. WEBER 1992, who evaluated its relative DNA-content) as *Tatraea dumbirensis*, although initially, the apothecial habit and construction seem to be that expected for some members of the *Sclerotiniaceae*.

Especially the apical apparatus of the asci is not typically sclerotiniaceous; the usually very thin, not protruding lower ring, and the slightly amyloid zones outside the upper ring are more reminiscent of *Ascocoryne* J. W. GROVES & D. E. WILSON. The medullary excipulum with a thick textura porrecta of smooth, hyaline hyphae, the absence of rhomboid crystals, the ectal excipulum of firmly connected, slightly thick-walled cells, the lack of a stroma, and the often subaquatic habitat are also more or less unusual for a sclerotiniaceous fungus. Besides *Ascocoryne*, the genus *Hymenoscyphus* (including *Phaeohelotium* KANOUSE) seems indeed to be very close, having a thin cylindrical ring very similar to *Tatraea*, but differing in the consistent absence of a lateral extension of the upper amyloid region while, usually, only the lower ring is reactive (*Hymenoscyphus*-type). Since *Helotium dumbirensis* seems to have an unusual combination of characters, we here adopt SVRČEK's genus *Tatraea*. A further taxon with unclear position, „*Ombrophila*“ *morthieriana* REHM, has exactly the *Tatraea*-type of apical ring and is possibly closely related. It differs in having a thick, strongly gelatinous layer covering the whole apothecium. *Rutstroemia rivularis* (CROUAN) LE GAL and *Phaeohelotium lilacinum* (BRES.) DENNIS might represent close taxa or even earlier synonyms of *Tatraea dumbirensis* but the available descriptions are not sufficient to allow a clear decision, and type material was not available during this study.



*Ombrophila decolorans* (BERK. & CURTIS) SACC. was restudied by HB from a ?syntype [K(M) 59185, no date, USA, Alabama, no locality, on wood of *Quercus*, PETERS; Fig. 11]. This was filed in SEEVER (1961) as a later synonym of *Ciboria peckiana*, [as „*Calycina macrospora* (PECK) SEEVER“]. The apical apparatus also clearly belongs to the *Tatraea*-type, differing from *T. dumbirensis* in being thinner, with the distinct amyloid zones occupying the complete dome. *Ciboria peckiana* is therefore considered to belong in *Tatraea*, and the new combination is here proposed.

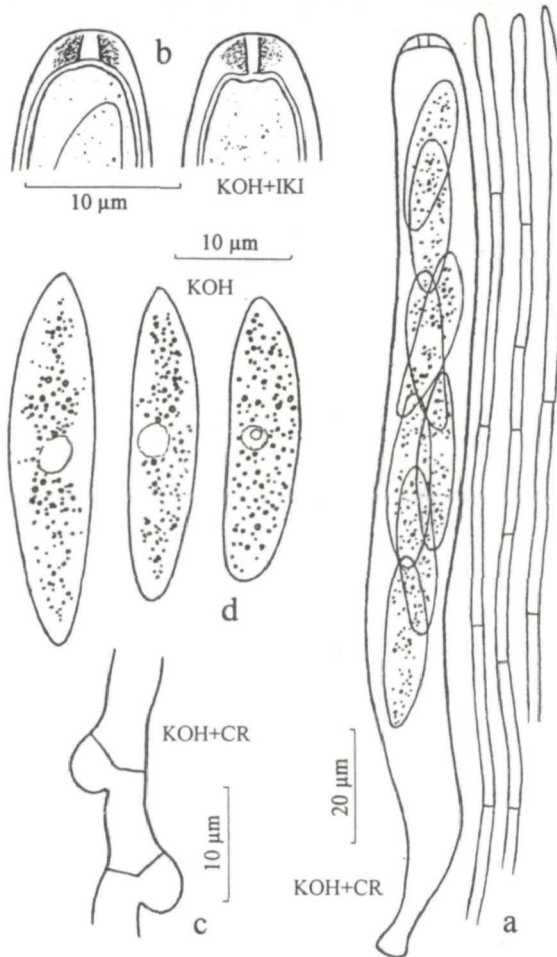


Fig. 11. *Tatraea* cf. *macrospora* (or „*Ciboria*“ *fusispora*?), ?syntype of *Ombrophila decolorans* [K(M) 59185]. a ascus (160-165 x 12-14 µm) and paraphyses. b ascus apices (deep blue in IKI). c croziers at the ascus base. d ascospores [24-32 x 6-7.5(-8.5) µm].

Very probably, the two Australasian taxa treated by SPOONER (1987) as forms of *Ciboria peckiana* also belong in *Tatraea*, although one is described with inamyloid asci. A further lignicolous species, *Ciboria fuispora* SPOONER, appears to differ only in the spore ends being pointed, and might therefore even be conspecific with *O. decolorans*. Consequently, the complete section *Lignicola* (excluding *C. bolaris* which is related to the genus *Rutstroemia* P. KARST.) described by SPOONER within *Ciboria* must be considered a synonym of *Tatraea*. However, without studying especially the apical apparatus in detail, further new combinations seem to be premature. Furthermore, the described differences among the taxa are not always very clear. Nevertheless, a key to the provisionally accepted taxa of *Tatraea* is given here.

***Tatraea macrospora* (PECK) BARAL, comb. nova**

Basionym: *Helotium macrosporum* PECK, Ann. Rep. New York State Mus. 26: 82 (1874)

= *Ciboria peckiana* (COOKE 1875) KORF, Phytologia 21: 203 (1971)

?= *Ombrophila decolorans* (BERK. & CURTIS) SACC., Syll. Fung. VIII: 616 (1889)

non *Ciboria macrospora* (SACC.) SACC. [= *Rutstroemia firma* var. *macrospora* (SACC.) WHITE]

(for further synonyms see WHITE 1941: 184, SEAVER 1961: 110 and SPOONER 1981: 302)

**Provisional key to the world species of *Tatraea*** (based on WHITE 1941 and SPOONER 1987).

- 1 Ascospores (15-)18-25(-31) x (5-)6-7(-9)  $\mu\text{m}$ , ends rounded, densely filled with small oil drops (LBs) (living state), slightly to medium curved, finally 1(-2)-septate, not budding, asci  $\dagger$ 150-188 x 9-12  $\mu\text{m}$ , deep blue in IKI (broad amyloid zones restricted to upper part of dome), on wood of *Fagus* (rarely *Abies*, *Betula*, *Fraxinus*, *Sorbus*), Europe ***T. dumbirensis***
- 1\* Ascospores 20-46  $\mu\text{m}$  long, outside Europe 2
- 2 Ascospores 20-31 x 6-8  $\mu\text{m}$ , ends pointed, finally 1-septate, not budding, asci distinctly blue in MLZ, on wood, Australia **„*Ciboria*“ *fuispora***
- 2\* Ascospores (21.5-)24-34(-46)  $\mu\text{m}$  long, ends rounded 3
- 3 Asci negative in MLZ (KOH-pretreated?),  $\dagger$ 130-157 x 17-20  $\mu\text{m}$ , ascospores 21.5-36 x 6.5-9  $\mu\text{m}$ , finally 1-5-septate, budding not observed, on wood, Papua New Guinea **„*C.*“ *peckiana* f. *novoguineensis***
- 3\* Asci blue in MLZ 4
- 4 Ascospores 22-40 x 6-8  $\mu\text{m}$ , with 4-8 large LBs (living state), finally 3-8-septate, budding off globose conidia on short tubules, asci  $\dagger$ 155-200 x 11-19  $\mu\text{m}$ , on wood (and bark) of various deciduous (frequently *Fagus*, but also *Acer*, *Betula*, *Eucalyptus*, *Fraxinus*, *Juglans*, *Nyssa*, *Quercus*), rarely coniferous trees, America (South, Central and North), South Asia, Australasia, Japan ***T. macrospora* (= *C. peckiana* f. *peckiana*)**
- 4\* Ascospores 35-46 x 6.5-8.5  $\mu\text{m}$ , non-septate, asci  $\dagger$ 220-240 x 22-24  $\mu\text{m}$ , on wood, Australia **„*C.*“ *peckiana* f. *gigaspora***

Our findings on *T. dumbirensis* differ slightly in a few characters from the literature data: the apothecial colours are different from those mentioned by VELENOVSKÝ (1934, ochracea), SVRČEK (1985, blackish) and SPOONER (1988, dark vinaceous brown or purplish chestnut when rehydrated, drying blackish-brown); our apothecia were distinctly pale greyish in fresh condition and SPOONER, clearly, did not see fresh material. Further, the ectal excipulum does not show only the thin-walled globose (to subglobose) cells as reported by SPOONER (1988) but also angular cells (besides dolii-form) as mentioned by SVRČEK (1993), having moderately thick walls (0.5-0.8  $\mu\text{m}$ ) and being firmly connected. Finally, although repeatedly sought, we never saw any hypothecium, as described by SVRČEK (1993, formed of isodiametric cells) but only a brownish subhymenium of a highly intricate texture.

The material from Lower Austria shows spore measurements at the lower limits (concerning length): (n = 20)  $\dagger(13.2-16.0-20(-20.8) \times (6.4-8.4-8.8(-9.6)$ , mean  $17.3 \pm 2.0$  s.d.  $\times 7.86 \pm 1.0$ , somewhat shorter than those of SPOONER (1988), but certainly this small difference still lies within the variability of the species. We wonder if the taxon described by L. M. KOHN (1982: 3) as "*Ciboria* sp. 1182" from Tenerife (Canary Islands, Macaronesia) growing on wood, with turbinate apothecia, excipulum composed of globose cells and having ellipsoid to allantoid spores measuring (11.7-) 13.7-18.6  $\times$  5.8-6.4  $\mu\text{m}$ , could be *Tatraea dumbirensis*. Two further German findings are mentioned in WÖLDECKE (1998), whilst another is reported in LUSCHKA (1993) on wood of *Fagus* and twigs of *Fraxinus* in the final stage of decay lying on the ground in mixed *Fraxinus-Acer*-forest, 820-1170 m s. m., MTB 7046/1. L. KRIEGLSTEINER (pers. comm.) made an additional collection in Bayern, Jura SW Regensburg, Kelheim, NSG „Ludwigshain“, MTB 7036/4, 460 m s. m., on decorticated *Fagus* wood, 8. 9. 1994, fungarium KRIEGLSTEINER 634K94.

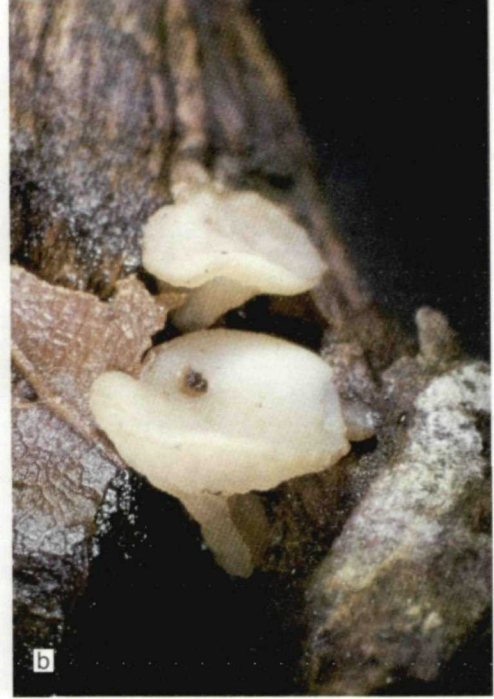
Ecologically, *Tatraea dumbirensis* would appear to prefer old, natural montane forests. The exception to this theory seems to be the Welsh (British) collection, which none of the authors has seen. The locality data, i.e. Narberth in the county of Dyfed (= Pembrokeshire), is the only information with the exsiccatum in K, and the collector, Mr. S. C. PORTER, died about ten years ago with no mention of it in his records. Narberth is a small town and, although near some of the Welsh largest ancient woodland sites with relict heathlands and conifer plantations, altitude does not exceed 300 m s. m. and *Fagus* is not native to this part of Wales. The trees known as substrates are preponderantly *Fagus sylvatica*, and once *Sorbus aucuparia* L. and *Abies* (cf. SVRČEK 1993 : 161!), *Betula* and *Fraxinus*, although there are some reports on undetermined rotten wood. The fact that this fungus apparently mostly requires undisturbed virgin forests for its occurrence, stresses the necessity of erection and correct management of forest reserves to conserve fungal biodiversity and thus also the fungal genepool (KRISAI-GREILHUBER 1997, see also PERINI 1998).

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records.

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Colour fig. V a-c. *Tatraea dumbirensis*, apothecia in their natural habitat. a, b AH 7216. - Phot. RGM. c N. M. 1357. - phot. NM.