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THE GENUS *ANTRODIELLA* (FUNGI, PORIALES) IN POLAND

MARCIN PIĄTEK

Abstract: Eight species of *Antrodiella* Ryvarden & I. Johans. are reported from Poland, of which *A. faginea* Vampola & Pouzar and *A. parasitica* Vampola are new to the country. Their ecology, taxonomy and geographical distribution are discussed. The species are compared with similar taxa and their main differentiating characters are outlined. *A. hoehnelii* (Bres.) Niemelä is reported from basidiomes of *Inonotus radiatus* (Sowerby: Fr.) P. Karst. and *I. nodulosus* (Fr.) P. Karst. *A. semisupina* (Berk. & M. A. Curtis) Ryvarden is reported for the first time from basidiomes of *Daedaleopsis tricolor* (Pers.) Bondartsev & Singer. Interactions between wood-rotting fungi earlier described by Finnish mycologists are briefly discussed, and an emendation of the term 'successor' is proposed.

Key words: *Antrodiella*, polypores, taxonomy, distribution, Poland, ecology

Marcin Piątek, Department of Mycology, W. Szafer Institute of Botany, Polish Academy of Sciences, Lubicz 46, PL–31–512 Kraków, Poland; e-mail: mpiatek@ib-pan.krakow.pl

INTRODUCTION

In describing *Antrodiella*, Ryvarden and Johansen (1980) included seven species from the so-called *Polyporus semisupinus* Berk. & M. A. Curtis complex in the genus. Many more were added or described later. At present the genus includes *ca* 40 species, briefly characterized as follows: basidiomes resupinate, effused-reflexed or pileate, hyphal system dimitic or trimitic, cystidia and gloeocystidia present or absent, basidiospores small and smooth, type of rot white (Niemelä 1982; Niemelä & Ryvarden 1983; Vampola & Pouzar 1996; Dai & Niemelä 1997; Johannesson *et al.* 2000).

In Europe the genus is represented by 14 species. To the 12 taxa given by Ryvarden and Gilbertson (1993), two more can be added: *Antrodiella faginea* Vampola & Pouzar (Vampola & Pouzar 1996) and *A. pallasii* Renvall, Johannesson & Stenlid (Johannesson *et al.* 2000). Two proposed species, *A. beschidica* Vampola & Pouzar and *A. farinacea* Vampola & Pouzar, were shown by Johannesson *et al.* (2000) to be conspecific with *A. semisupina* (Berk. & M. A. Curtis) Ryvarden. In some neighboring countries such as the Czech Republic and Slovakia the genus is well investigated (Kotlaba 1984; Vlasák 1990; Vampola 1991a, b; Vampola & Pouzar 1994, 1996; Holec & Pouzar 1998). In Poland it is relatively poorly known, with few localities for each species, and many additional localities as well as new species may well be found there.

Recently numerous collections of *Antrodiella* were made in the Polish Carpathians and the Kotlina Sandomierska basin and the material is now being identified. Herein two species new for Poland, *A. faginea* and *A. parasitica* Vampola, are discussed, and all the Polish species of the genus are briefly reviewed. A key to the Central European species of *Antrodiella* was published by Vampola and Pouzar (1996), so it is not repeated here. In the following review only the most important synonyms are provided.

REVIEW OF THE GENUS *ANTRODIELLA* IN POLAND

TAXA UNQUESTIONABLY OCCURRING IN POLAND

Antrodiella citrinella Niemelä & Ryvarden

Karstenia **23**: 26. 1983.

DISTRIBUTION IN POLAND. Babia Góra National Park, Święty Krzyż National Park (Niemelä & Ryvarden 1983).

REMARKS. This species is usually found near or on dead basidiomes of *Fomitopsis pinicola* (Sw.: Fr.) P. Karst., as with the Polish collection. This connection seems to be regularly observed in the whole geographical range of *A. citrinella* (Niemelä & Ryvarden 1983; Dai & Niemelä 1997).

Antrodiella faginea Vampola & Pouzar

Czech Mycol. **49**(1): 25. 1996.

Basidiomes annual, effused-reflexed, circular when young, then irregularly effused, soft when fresh and hard when dry; pileus small, single or sometimes imbricate, with several small pilei, up to 2 cm wide and 4 cm long, cream-colored on upper surface; hymenophore whitish or cream-colored, especially in old basidiomes; pores round, angular, 3–5 per mm; subiculum up to 1 mm thick, macroscopically identical with *A. semisupina*. Hyphal system trimitic; generative hyphae thin-walled, with clamps, 3–4 μm wide; skeletal hyphae thick-walled, nonseptate, 2–4 μm wide; binding hyphae thick-walled, branched, 2–3 μm wide. Gloeocystidia variable in form, clavate, fusiform, often capitate, thin-walled, 10–30 × 4–10 μm. Basidia clavate, with four sterigmata and a basal clamp, 10.5–15.0 × 4.2–5.2 μm. Basidiospores ellipsoid, smooth, slightly tapering at the end, 3.1–4.2 × 1.7–2.1 μm, L = 3.71, W = 1.87, Q = 1.98 (n = 30/1).

SPECIMENS EXAMINED. POLAND. WESTERN CARPATHIANS. Pogórze Ciężkowickie foothills: 1 – Bistuszowa, near Podlesie farmstead, in valley of unnamed stream between Ptasznik Mt. in the west and Wielka Góra Mt. in the east, alt. *ca* 400 m, 10 Aug. 2000, *leg. M. Piątek* (KRAM F-51169).

TAXONOMY AND IDENTIFICATION. As indicated by Vampola and Pouzar (1996), the presence of gloeocystidia makes *A. faginea* easily distinguishable from other *Antrodiella* species, in particular *A. semisupina*, which has the same macroscopic appearance. Another European species with gloeocystidia is *A. americana* Ryvarden & Gilb., but it has large pores (1–2/mm) and often occurs on dead basidiomes of *Hymenochaete* Lév., especially *H. tabacina* (Sowerby: Fr.) Lév. (Ryvarden & Gilbertson 1993).

HABITAT AND SUBSTRATE. The Polish locality for *A. faginea* is located in the best-preserved remnants of the forests within the Pogórze Ciężkowickie foothills. The fungus occurred in mesophilous forest dominated by *Fagus sylvatica* L. and *Abies alba* Mill., in a moist and shady site close to a small stream. The collection was made from a thin branch of *Fagus sylvatica*, 1 cm in diameter. What is interesting is that the fungus seems to be closely connected with beech wood, at least in Central Europe. About 90% of the collections of the fungus from the Czech Republic derive from *Fagus sylvatica*, and a few were found on *Carpinus betulus* L., *Quercus cerris* L. and *Quercus* sp. (Vampola & Pouzar 1996). Other host preferences were noted in Northern European populations outside the range of *Fagus*. In Finland the species was recorded on *Padus avium* Mill., *Populus tremula* L. and *Salix caprea* L. (Johannesson *et al.* 2000). The ecology of *Antrodiella faginea* needs further observations.

DISTRIBUTION. The general distribution of *Antrodiella faginea* is not yet fully known because of the recentness of the description of the species, and its scanty collections. So far it has been reported only from the Czech Republic (Vampola & Pouzar 1996) and Finland (Johannesson *et al.* 2000). Now a new country, Poland, must be added to its geographical range, but probably a revision of the herbarium specimens of *A. semisupina* s.l. will reveal a wider distribution of *A. faginea* than is known at present.

Antrodiella fissiliformis (Pilát) Gilb. & Ryvarden

North Amer. polyp. **2**: 808. 1987.

Poria fissiliformis Pilát, Stud. Bot. Čech. **3**: 1. 1940. – *Tyromyces fissiliformis* (Pilát) Kotl. & Pouzar, Česká Mykol. **42**(3): 132. 1988.

Poria mentschulensis Pilát *ex* Pilát, Sborn. Mus. Nár. Praha, **9B**(2): 105. 1953. – *Tyromyces mentschulensis* (Pilát *ex* Pilát) Bondartsev, Trut. griby: 233. 1953.

DISTRIBUTION IN POLAND. Białowieża Primeval Forest (Kotlaba & Pouzar 1988).

REMARKS. The species is easy to recognize because of its apricot-colored pileus and dimitic hyphal system. It is rare in Europe, known from scattered localities in the central part of the continent (Ryvarden & Gilbertson 1993).

Antrodiella foliaceodentata (Nikol.) Gilb. & Ryvarden

European polyp. **1**: 153. 1993.

Irpex foliaceodentatus Nikol., Bot. Mat. Otd. Spor. Rast. Bot. Inst. **6**: 85. 1949. – *Coriolus foliaceodentatus* (Nikol.) Domański, Acta Soc. Bot. Pol. **39**(4): 701. 1970. – *Trametes foliaceodentata* (Nikol.) Domański, Fungi: 241. 1973.

DISTRIBUTION IN POLAND. Białowieża Primeval Forest (Kotlaba & Lazebníček 1967; Domański 1970b; Domański *et al.* 1973).

REMARKS. This is a very rare species, known from only one locality in the Białowieża Primeval Forest, two localities in the Caucasus (Ryvarden & Gilbertson 1993) and one in the West Siberian Lowland (Mukhin 1993).

Antrodiella hoehnelii (Bres.) Niemelä

Karstenia **22**: 11. 1982.

Polyporus hoehnelii Bres. *in* Höhn., Sitzungsber. Kaiserl. Akad. Wiss. Wien (Math.-nat. Kl., Abt. 1) **121**: 344. 1912. – *Coriolus hoehnelii* (Bres.) Bourdot & Galzin, Hym. France: 568. 1928. – *Trametes hoehnelii* (Bres.) Pilát, Atl. champignons de l'Europe: 270. 1939.

DISTRIBUTION IN POLAND. The species has been reported many times from different parts of Poland, usually from beech forests, especially in upland and mountain areas (e.g., Domański *et al.* 1967, 1973; Domański 1970a; Wojewoda 1974). This is the most common species of *Antrodiella* in Poland.

REMARKS. *Antrodiella hoehnelii* is one of the so-called 'successor' species in late stages of wood decomposition (Niemelä *et al.* 1995), and occurs usually on or near dead basidiomes of *Inonotus radiatus* (Sowerby: Fr.) P. Karst. In Poland such an association has not been recorded in the mycological literature, evidently because no special attention has been paid to this phenomenon. However, this relationship was noted in Polish populations of *A. hoehnelii* as well, and is documented here for the first time. Beautiful collections were made in a moist alder forest in the Kotlina Sandomierska basin (collections: KRAM F-50414, F-50443). Basidiomes of *A. hoehnelii* emerged directly from dead basidiomes of *I. radiatus* from the previous year, which had grown on fallen trunks of *Padus avium* and an unidentified deciduous tree. In the Western Carpathians (collection: KRAM F-39919) the species was recorded on dead basidiomes of *Inonotus nodulosus* (Fr.) P. Karst. on a fallen trunk of *Fagus sylvatica* in a shady ravine within a moist beech forest.

SPECIMENS EXAMINED. POLAND. KOTLINA SANDOMIERSKA BASIN. Płaskowyż Tarnowski plateau: 1 – Podlesie, at Machowski stream near Słotwina reserve, 19 July 2000, *leg. M. Piątek* (KRAM F-50414, F-50443); WESTERN CARPATHIANS. Pogórze Rożnowskie foothills: 2 – Wróblowice, Uroczysko Wróblowice proposed reserve, alt. *ca* 290 m, 02 July 1997, *leg. M. Piątek* (KRAM F-39919); 3 – Styr reserve in Bieśnik, forest division 53, alt. *ca* 380 m, *Tilio-Carpinetum*, branch of *Fagus sylvatica*, 24 Aug. 2000, *leg. M. Piątek* (KRAM F-51088).

Antrodiella parasitica Vampola

Česká Mykol. **45**(1–2): 10. 1991.

Basidiomes annual, resupinate, at first circular, then appearing effused and larger and covering an area up to 5 cm^2, soft when fresh and hard when dry; hymenophore at first whitish, then cream-colored, sometimes with brownish patches at least in older basidiomes; pores round or sometimes angular, 3–5 per mm; margin in young basidiomes sterile, whitish, in older ones sharp, without sterile area; subiculum white, up to 1.5 mm thick. Hyphal system trimitic; generative hyphae with clamps, 3–4 μm wide; skeletal hyphae thick-walled, without septa, 2–4 μm wide; binding hyphae richly branched, 2–3 μm wide. Cystidia smooth, cylindrical, 15.2–25.0 × 3.0–7.5 μm. Basidia clavate, with four sterigmata and a basal clamp, 14.6–25.0 × 4.2–6.2 μm. Basidiospores ellipsoid, slightly tapering at end, 3.1–4.2 × 2.1–3.1 μm, L = 3.54, W = 2.40, Q = 1.39–1.56 (n = 60/2).

SPECIMENS EXAMINED. CZECH REPUBLIC. MORAVIA: 1 – 'Velké Dářko' near Radostín, 10 km SSW from Žd'ár, alt. *ca* 620 m, on basidiomes of *Trichaptum abietinum* growing on fallen trunk of *Picea abies*, 27 June 1990, *leg. P. Vampola* (Vampola 1992). POLAND. WESTERN CARPATHIANS. Pogórze Rożnowskie foothills: 1 – Moszczenica, alt. *ca* 380 m, 05 Aug. 1999, *leg. M. Piątek* (KRAM F-39840); 2 – Styr reserve in Bieśnik, forest division 54, alt. *ca* 340 m, 20 Oct. 2000, *leg. M. Piątek* (KRAM F-51017).

ADDITIONAL SPECIMENS (not seen). FINLAND. UUSIMAA PROV.: 1 – Sibbo, Hindsby, on fallen trunk of *Picea abies*, on *Trichaptum*, 18 Feb. 1995, *leg. S. Jakobsson* 1247, *conf. P. Renvall* (H); POHJOIS-KARJALA PROV.: 2 – Puolanka, *Picea abies*, on dead *Trichaptum abietinum*, 1997, *leg. Lehesvirta*, *conf. P. Renvall* (TUR).

TAXONOMY AND IDENTIFICATION. Among the Central European species of the genus, *A. parasitica* is a distinct taxon due to its strictly resupinate basidiomes, the presence of cystidia and the occurrence on *Trichaptum abietinum* (Pers.: Fr.) Ryvarden and coniferous wood. In Central Europe *A. citrinella* also occurs on conifers. However, that species has a citric yellow hymenophore and smaller, subglobose basidiospores. *Antrodiella fissiliformis* may be found on conifers also, but it has an orange or apricot pileus and a dimitic hyphal system. On the basis of one collection from *Abies alba*, Vampola and Pouzar (1996) recently described another conifer-inhabiting species: *A. beschidica*, which is macro- and microscopically similar to *A. semisupina*. The only character differentiating them was the growth of the former on conifers. Molecular data did not support the separation of this collection as a distinct species (Johannesson *et al.* 2000).

The most important character of *A. parasitica* is its occurrence directly on or close to dead specimens of *Trichaptum abietinum*. Until recently no other species of *Antrodiella* has been known to show a relationship with *Trichaptum*. Johannesson *et al.* (2000) proved that the collections from Northern Europe previously determined as *A. parasitica* have a different appearance. The molecular data confirmed this, and in consequence the new species *A. pallasii* Renvall, Johannesson & Stenlid was described. Probably the collections from the Nordic countries named either as *Antrodiella* sp. 1 or *A. parasitica* (Renvall *et al.* 1991; Niemelä *et al.* 1992; Ryvarden & Gilbertson 1993; Renvall 1995; Hansen & Knudsen 1997; Sippola & Renvall 1999) refer to *A. pallasii*, not to *A. parasitica*. Basidiomes of *A. parasitica* are strictly resupinate, with cystidia, while in *A. pallasii* those are effused-reflexed and without cystidia. One of the two anonymous reviewers sent the author information on two specimens from Finland that were confirmed by Dr. Pertti Renvall (Kuopio, Finland) to be *Antrodiella parasitica* s. str. The details on these collections are cited above.

HABITAT AND SUBSTRATE. The Polish collections of *A. parasitica* derive from the Pogórze Rożnowskie foothills. The area is one of the northernmost parts of the Carpathians characterized by warm temperate climate, with yearly mean temperature of 6–8°C. As a rule the forests are small and damaged, with the exception of some higher elevations where they are relatively well-developed and cover a larger area.

Except for some minor differences the habitat ecology and substrate in the two localities were similar. In Moszczenica *A. parasitica* occurred in medium-aged fir forest. The basidiomes emerged from dead *Trichaptum abietinum* growing on the underside of a thin branch of *Abies alba*, 4 cm in diameter. The branch with fungi was lying in an exposed and dry place where the tree stand was partly cut and the forest floor was severely invaded by *Rubus hirtus* L.

Similarly, in the Styr reserve *Antrodiella parasitica* was found in fir-dominated forest. In the place where *A. parasitica* was found the fir stand is 60 years old. The fungus grew on dead basidiomes of *Trichaptum abietinum* developed on a fallen branch of *Abies alba*, 5 cm in diameter. Some specimens of *Skeletocutis carneogrisea* A. David, also linked with decaying basidiomes of *Trichaptum abietinum*, were noted on the same branch. The accidental coexistence of these two fungi was also mentioned by Vampola (1991a), and is due to the similar ecology of *A. parasitica* and *S. carneogrisea.*

The observation in Poland suggests that the species may be one of the fungi that occur in natural coniferous forests but are not restricted to old, almost primeval forests (group b, sensu Kotiranta & Saarenoksa 2000).

DISTRIBUTION. The current distribution of *A. parasitica* is difficult to estimate because of misinterpretations of some of the collections, at least in Northern Europe (see above). The species undoubtedly is distributed in the Czech Republic, Slovakia (Vampola 1991a), Finland and Poland, and possibly in Germany (see Niemelä *et al.* 1992). Occurrence in Norway and Sweden should be reinvestigated.

Antrodiella romellii (Donk) Niemelä

Karstenia **22**: 11. 1982.

Poria romellii Donk, Persoonia **5**: 84. 1967.

Poria byssina Romell, Svensk Bot. Tidskr. **20**: 8. 1926.

Tyromyces byssinus (Pers.) Bondartsev, Trut. griby: 164. 1953, *comb. invalid.* (see Donk 1967).

DISTRIBUTION IN POLAND. Pojezierze Mazurskie lakeland (Domański 1963a), Białowieża Primeval Forest (Domański 1965) and Bieszczady Mts (Domański *et al.* 1970).

Antrodiella semisupina (Berk. & M. A. Curtis) Ryvarden

Prelim. polyp. fl. East Africa: 261. 1980.

Polyporus semisupinus Berk. & M. A. Curtis, Grevillea **1**: 50. 1872. – *Tyromyces semisupinus* (Berk. & M. A. Curtis) Murrill, North Amer. fl. **9**(1): 34. 1907. – *Leptoporus semisupinus* (Berk. & M. A. Curtis) Pilát, Atl. champignons de l'Europe: 212. 1938.

DISTRIBUTION IN POLAND. *Antrodiella semisupina* has been reported from some regions but these records should treated with caution. They may include other species as well, such as *A. faginea*, *A. genistae* (Bourdot & Galzin) A. David or *A. onychoides* (Egeland) Niemelä. All the Polish collections should be re-examined. Many recent collections from southern Poland seem to represent this taxon *sensu stricto*.

REMARKS. This fungus was reported to grow as a 'successor' species on or close to dead basidiomes of *Fomes fomentarius* (L.: Fr.) Fr. and other polypores (Ryvarden & Gilberston 1993, Niemelä *et al.* 1995), but in Poland such an association has not yet been observed. Recently in the Western Carpathians it was once observed to grow on dead basidiocarps of *Daedaleopsis tricolor* (Pers.) Bondartsev & Singer (collection: KRAM F-51073). The basidiomes occurred on a dead standing trunk of *Corylus avellana* L., on and around dead basidiocarps of *D. tricolor* 1.5 m above the ground, in mesophilous forest with *Fagus sylvatica*, *Abies alba* and *Carpinus betulus*.

SPECIMENS EXAMINED. POLAND. KOTLINA SANDOMIERSKA BASIN. Nizina Nadwiślańska lowland: 1 – Tarnów, Chyszowski Lasek forest (at Hodowlana Street), deciduous forest, branch of *Tilia*, 18 Oct. 2000, *leg. M. Piątek* (KRAM F-51262); Płaskowyż Tarnowski plateau: 2 – Tarnów, Lipie forest (at Błonie Street), *Tilio-Carpinetum*, branch of *Carpinus betulus*, 10 Sept. 1998, *leg. M. Piątek* (KRAM F-51261), branch of deciduous tree, 09 Sept. 1998, *leg. M. Piątek* (KRAM F-51264); 3 – Tarnów, Debrza reserve (at Wiśniowa Street), *Tilio-Carpinetum*, branch of *Quercus robur*, 26 Aug. 1999, *leg. M. Piątek* (KRAM F-51263); 4 – Grabiny, *Pino-Quercetum*, branch of *Quercus*, 18 July 1998, *leg. M. Piątek* (KRAM F-51259). WESTERN CARPATHIANS. Pogórze Ciężkowickie foothills: 5 – Ryglice, near Pod Lasem farmstead in valley of unnamed stream on NW slopes of Góra Liwecka Mt. alt. *ca* 360 m, 08 Aug. 2000, *leg. M. Piątek* (KRAM F-51073); 6 – Wąwóz Wodospad ravine near Ciężkowice, alt. *ca* 300 m, forest with *Abies alba* and *Quercus robur*, branch of *Quercus robur*, 06 Aug. 1999, *leg. M. Piątek* (KRAM F-51260).

TAXA WHOSE OCCURRENCE IN POLAND SHOULD BE RECONSIDERED

Antrodiella genistae (Bourdot & Galzin) A. David

Bull. Soc. Mycol. France **106**: 75. 1990.

Coriolus genistae Bourdot & Galzin, Hym. France: 569. 1928.

Antrodiella onychoides (Egeland) Niemelä

Karstenia **22**: 11. 1982.

Polyporus onychoides Egeland, Nyt Mag. Naturvidenskaberne **51**: 92. 1913.

REMARKS. Domański (1963b) reported a collection from the Sudetes, which he determined as *Coriolus genistae* Bourdot & Galzin. On the basis of the attached description of this collection, '...hyphis crassitunicatis vel subsolidis, flexuosis, haud fibulatis, 2.5–4 μ crassis...', it is evident that the determination is incorrect. It is very likely that the specimen represents *Antrodiella onychoides*, the only member of the genus *Antrodiella* with simple-septate hyphae. Fortunately the herbarium of Stanisław Domański is well preserved and will be re-examined.

DISCUSSION

Eight species of *Antrodiella*, including the newly reported *A. faginea* and *A. parasitica*, are now known from Poland. The presence of another one, *A. onychoides*, is probable but should be confirmed, whereas *A. genistae* must be excluded (at least for now) from the Polish list of species. It is interesting that representatives of *Antrodiella* often occur on dead basidiomes of other polypores. In Poland this relationship has remained unnoticed, and this paper includes the first reports of the phenomenon in the country. *Antrodiella hoehnelii* and *A. semisupina* were recorded on specimens of *Inonotus* (*I. radiatus* and *I. nodulosus*) and *Daedaleopsis tricolor*, respectively. *Antrodiella semisupina* is known to follow *Fomes fomentarius*, and it seems that the finding on wood previously decayed by *D. tricolor* is the first in the world, not just Poland. *Daedaleopsis tricolor* is a very rare species in Poland, reported only from the southeastern part of the country (Piątek 2001).

The occurrence of wood-rotting fungi on other fungi is not accidental in many cases but is linked with fungal succession during the decomposition of wood. Some fungi occur as pioneer decayers in an early stage of decomposition, and they are subsequently replaced by others in later stages of wood degradation. The 'successors' emerge after the death of the 'preceding species' and often their basidiomes appear on or close to dead basidiomes of the previous one. Niemelä *et al.* (1995) discussed the mechanism of these interactions in detail. They introduced the term 'successors' for fungi that inhabit trees previously decayed by certain other species, while the latter were named as 'predecessors' or 'preceding species'. Holmer *et al.* (1997) studied the phenomenon in laboratory experiments.

Both *Antrodiella hoehnelii* and *A. semisupina* show strong dependence on 'preceding species' but may also grow alone on wood not decayed by other polypores. This was observed in Poland, where both species (especially *A. semisupina*) were observed on thin branches up to 5 cm in diameter. *Antrodiella faginea* in Poland grew solitarily, without any visible association with other fungi. In Finland, however, it appears often on dead basidiomes of *Phellinus punctatus* (P. Karst.) Pilát and some other species of *Phellinus* Quél. (Johannesson *et al.* 2000). Therefore the fungus may be treated as a 'successor' species, but this association is not obligatory. The situation is quite different in the case of *A. parasitica*. This species occurs exclusively on dead *Trichaptum abietinum*, which is one of the commonest pioneer decayers on coniferous branches, logs and trunks, more rarely observed on deciduous trees (Ryvarden & Gilbertson 1994). *Antrodiella parasitica* together with its 'predecessor' usually occurs on *Abies alba* and *Picea abies* (L.) H. Karst., but once Vampola (1991a) found *T. abietinum* with basidiomes of *A. parasitica* on wood of *Fagus sylvatica*, which means that the relationship between the two fungi is highly convergent.

To summarize, there seem to be two different variants of the link between 'successors', 'predecessors' and wood, one a strict connection and the other a looser one. Hence, in addition to the terminology of Niemelä *et al.* (1995), an emendation of the term 'successors' is proposed: *(i)* obligatory successors – fungi that always or almost always occur on wood previously decayed by 'predecessors', examples being *Antrodiella citrinella*, *A. pallasii*, *A. parasitica* and *Skeletocutis carneogrisea*; *(ii)* facultative successors – fungi that generally occur on dead basidiomes of 'predecessors' or on wood previously decayed by a 'preceding species', but which may also be found on wood not decayed by other species, examples being

Antrodiella faginea, *A. hoehnelii* and *A. semisupina*.

Further studies on this interesting phenomenon certainly are needed to explain many details. Representatives of the genus *Antrodiella* especially should be considered, because the genus includes numerous 'successors'. A careful study in Poland should enrich the list of Polish *Antrodiella*, as well as give new records for the known taxa of the genus.

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