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NEW DATA OF LEOTIOMYCETES FUNGI IN SERBIA

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This article is a contribution to the study of ascomycetes from the class Leotiomycetes in Serbia. The list of new records that have not been found before represents a continuation of research and activities on their documentation. In two earlier publications (Savić & Karaman 2016 and Savić 2020), data from the literature and all new data obtained from field research of a large number of localities throughout Serbia were combined. The paper presents data on 70 species, of which 66 are the first findings for the territory of Serbia and 4 are from the literature.

Key words: Helotiales, Phacidiales, Rhytismatales, Thelebolales

INTRODUCTION

According to the latest classification by Wijayawardene (2024), the phylum Ascomycota is divided into 24 classes, with around 93,000 species described to date, out of an estimated 2.2 to 3.8 million thought to exist on Earth (Senanayake 2022).

The Leotiomycetes class is a significant and diverse group within the phylum Ascomycota, renowned for its ecological and biological diversity. With approximately 5,500 species formally described (Johnston *et al.* 2019), this class represents only a fraction of its estimated diversity, which is thought to encompass around 80,000 species. Such numbers highlight the vast potential for discovery and the need for further taxonomic and ecological research in this group.

Leotiomycetes species inhabit a wide range of ecological niches and demonstrate remarkable versatility in their interactions with the environ-

ment. The majority of species are saprobes, thriving on a variety of substrates, including decaying plant material, soil, and organic debris. However, the ecological roles of Leotiomycetes extend far beyond saprobic activity. Many species are significant plant pathogens, causing diseases in economically important crops and forests. Beyond their pathogenic roles, Leotiomycetes also exhibit mutualistic and commensalistic relationships. The class includes endophytes that live within plant tissues without causing harm, as well as mycorrhizal fungi that form beneficial associations with plant roots. Other members act as fungal parasites, exploiting other fungi for survival, while some are root symbionts that enhance nutrient uptake for their hosts. Additionally, species capable of decomposing lignin and cellulose contribute to wood decay and nutrient cycling in forest ecosystems (Jaklitsch *et al.* 2016).

The diversity of ecological strategies within Leotiomycetes underscores its importance in both natural and managed ecosystems. Understanding the biology, ecology, and evolutionary history of this class is critical for advancing mycological research and biodiversity conservation.

Serbia lacks a long-standing and continuous tradition in mycological research, which has resulted in a relatively small number of published findings. This applies to all groups of fungi, but particularly to members of the class Leotiomycetes. At this stage, it is difficult to estimate the total number of species likely to be found in Serbia, given the country's diverse habitats and geographic position. However, it is certain that the actual number is many times greater than the number of species recorded so far. Over the past decade, research on Ascomycota within the class Leotiomycetes has shown high species diversity in Serbia.

Data on findings up to 2020, alongside those from other authors, have been published in papers by Savić & Karaman (2016) and Savić (2020). This paper presents data on 66 species that have not been previously recorded in Serbia.

MATERIALS AND METHODS

A total of 86 fungal samples were collected and analyzed from 2020 to 2024, primarily from Fruška Gora Mountain, with additional collections from other mountainous regions: Golija, Vlasina, Kopaonik, Cer, Tara, Zlatibor and Kukavica. Macroscopic characteristics were documented based on fresh apothecia, while microscopic characteristics were studied using vital taxonomy methods (Baral, 1992). Observations were conducted with a BIM313T–LED transmission light microscope using bright-field illumination.

Macro photographs were taken in situ (in the field) using a Canon 7D camera equipped with a Canon 100mm macro lens or a Canon MP–E 65 lens, along with a twin light flash for enhanced lighting. All photographs, macro and micro, were made by the author.

Abbreviations and Explanations: KOH = potassium hydroxide solution (ca. 5%), IKI = 1% iodine (I_2) and 3% potassium iodide (KI).

Species identification was conducted using both published and unpublished identification keys and verified by comparing species descriptions in individual scientific papers (cited at the end of each species description). Where available, collections of macro and microphotographs were consulted, especially from In vivo veritas (Baral 2024). All collected samples were dried and deposited in the Herbarium of Fruška Gora National Park (denoted as F.G.), an unofficial yet documented collection. Author citations follow the conventions of Index Fungorum (2024), while taxonomy and nomenclature (families and genera) adhere to Baral *et al.* (2015) and Jaklitsch *et al.* (2016), with changes to distinguish the new families Patelariopsidaceae (Karunarathna *et al.* 2020), Solenopeziaceae (Ekanayaka *et al.* 2019) and Tricladiaceae (Johnston *et al.* 2020).

Families, genera, and species are listed in alphabetical order. For each species, the following information is provided: scientific name, locality (first the wider area, e.g. Fruška Gora, then the name of the closer locality), GPS coordinates, date, host, and herbarium number. For contributions from other mycologists, the names of the collector and identifier (leg. & det.) are also included. For any referenced published data, author citations are provided along with page numbers and other relevant details. Each species entry includes a brief description of the specimens found, accompanied by macro and micro photographs (Figs. 1–66).

RESULTS

Species List

Class **Leotiomycetes** O.E. Erikss. & Winka 1997

Ordo: HELOTIALES Nannf. 1932

Fam.: **Calloriaceae** Marchand 1894

Calloria gentianae Grelet & Croz.

Specimen data: Fruška Gora, Iriški venac, 45.147105° N, 19.824061° E, leg. & det. D. Savić, 21.05.2024, on the dead stem and leaves of *Geum urbanum*, F.G. 1984. (Fig. 1).

Description: Apothecia sessile, scattered, 0.2–0.5 *mm* diam., initially spherical and then concave, white or pale ochre, gelatinous, furfuraceous.

Asci arising from croziers, clavate, 40–60 × 10–11 *µm*, apical ring hemiamyloid (red with IKI). Paraphyses slender, straight or sometimes slightly curved, slightly inflated at the tips. Ascospores 8.8–12.5 × 2.7–3.4 *µm*, hyaline, elongate-ellipsoid, rounded at both ends, initially aseptate, becoming one-septate when overmature, with small oil drops. Hairs with a bulbous base, glassy, tapering towards the tip, 10–20 *µm* in length.

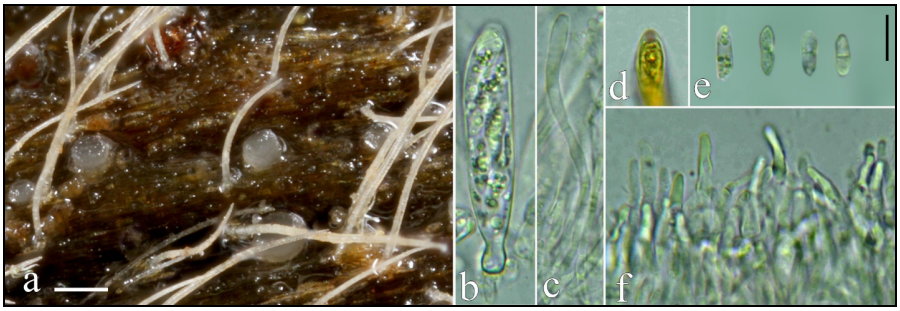

Fig. 1. – *Calloria gentianae* – a: Apothecia, *in situ*; b: Ascus; c: Paraphysis; d: Apical ring red with IKI; e: Ascospores. f: Hairs – Scale bars: 0.2 *mm* for a, 10 *µm* for b–f.

Notes: Information on this tiny species in the literature is extremely rare. A brief Latin description was provided by Grelet & Croz. (1928) when describing the species, and since then, the only data available for comparison are the results of an analysis of a few samples, which can be seen in Baral's GoogleDrive (Baral 2024). The samples I collected were immature, so the dimensions of the asci and ascospores cannot be considered relevant, but in other characteristics, they correspond very well with the analyses of specimens available in Baral (2024). The small number of findings and detailed microanalyses of this and related species from the same or other genera within the family Calloriaceae clearly indicate the need for a taxonomic revision of the entire family in the future.

Fam.: **Dermateaceae** Fr. 1849

Pezicula frangulae (Pers.) Fuckel

Specimen data: Golija, Košaninova jezera, 43.474812° N, 20.414544° E, on still atached dead branch of *Frangula alnus,* leg. & det. D. Savić, 07.07.2024, F.G. 2009. (Fig. 2).

Description: Apothecia erumpent, mostly linearly grouped, with a short stalk, rounded, initially concave, then convex, dark brown to almost black, 0.5–0.8 *mm* in diameter. Asci arising from croziers, cylindrical-clavate, 85–100 × 13–15 *µm*, 4-spored, apical ring hemiamyloid (red with IKI). Paraphyses filiform, septate, simple, 2–2.4 *µm*, inflated at the tip (~4 *µm*), embedded in brownish material. Ascospores inequilateral, ellipsoid,

straight or slightly curved, rounded at both ends, aseptate, hyaline, filled with greenish oil droplets; 17–22 × 7.6–8.5 *μm*. The description of this sample fits well with that given by Verkley (1999).

Fig. 2. – *Pezicula frangulae* – a: Apothecia, *in situ*; b: Asci and Paraphyses; c: Crozier at the ascus base; d: Apical ring red with IKI; e: Ascospores – Scale bars: 0.5 *mm* for a, 10 *μm* for b–e.

Notes: The apothecia of most species in the genus *Pezicula* are sessile and have 8 ascospores in the asci, which makes *P. frangulae* very easy to distinguish from others since its apothecia have a short stalk and only 4 ascospores in the asci. Additionally, it is host-specific, meaning it grows only on dead branches of *Frangula alnus*. At the location where they were found, they were very numerous and could be seen on almost every dry branch of *F. alnus*, which was also abundant at that site. Due to a long period without precipitation, all the specimens found were completely dry, and after rehydration, some of them quickly regained their shape and color.

Fam.: **Drepanopezizaceae** Baral 2019

Diplocarpon mespili (Sorauer) B. Sutton

Literature data: Niš, sub *Entomosporium mespili*, on *Cotoneaster vulgaris*, Schroeter 1890: 63.

Notes: Literature data on this and the following two species are listed in this paper as an addition to the checklist of fungi from the class Leotiomycetes of Serbia. At the time of writing the previous two papers (Savić & Karaman 2016, Savić 2020), the paper Schroeter (1890) was not available to the authors.

Gloeosporium ostryae Thüm.

Literature data: Čačak, on *Ostrya carpinifolia*, Schroeter 1890: 63.

Leptotrochila repanda (Fr.) P. Karst.

Literature data: Beograd, Makiš, sub *Phacidium repandum*, on *Galium rubicundum*, Schroeter 1890: 58.

Fam.: **Gelatinodiscaceae** S.E. Carp. 1976

Chloroscypha alutipes (W. Phillips) Dennis

Specimen data: Fruška Gora, Jazak, 45.115672° N, 19.761260° E, on the branches, needles and fallen fruits of *Juniperus communis*, leg. & det. D. Savić, 18.05.2021, F.G. 1614 (Fig. 3); Fruška Gora, Đurđevac, 45.123890° N, 19.639612° E, on the branches, needles and fallen fruits of *Juniperus communis*, leg. & det. D. Savić, 12.11.2021, F.G. 1674; Fruška Gora, Iriški venac, 45.152310° N, 19.840132° E, on the branches and needles of *Juniperus horizontalis*, leg. & det. D. Savić, 19.04.2023, F.G. 1880.

Description: Apothecia gregarious, rarely solitary, discoid to broadly cupulate, 0.5–2 *mm* diam., yellow-orange to ocher, with stipe length 1–3 *mm*; outer surface and stem slightly lighter than the hymenium, smooth. Asci arising from croziers, cylindrical, 130–140 × 13–14 *μm*, 8-spored, apical ring euamyloid (blue with IKI). Paraphyses filiforme, septate, inflated at top (~3 *μm*), with a few small refractive vacuoles. Ascospores ellipsoid to broadly fusoid, slightly asymmetrical, 21.5–26.5 × 5,5–6.8 *μm*, hyaline, contain 2 or 3 large oil drops and many small ones. This specimens corresponds with the description provided by Dennis (1963).

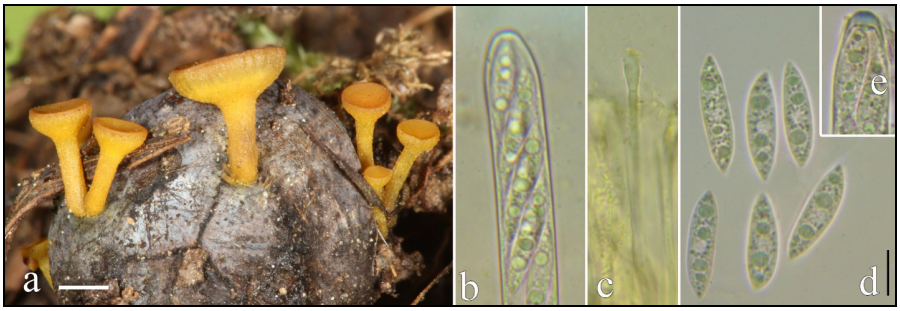

Fig. 3. – *Chloroscypha alutipes* – a: Apothecia, *in situ*; b: Ascus; c: Paraphysis; d: Ascospores; e: Apical ring blue with IKI – Scale bars: 1 *mm* for a, 10 *μm* for b–e.

Notes: At both locations where it was found, the species was very abundant and easily noticeable, with yellow-orange apothecia contrasting against the dark remains of the substrate. It typically grows on the remains of *Juniperus* spp. (twigs, needles, fruits), but the host plant can also be *Cupressus* (Van Vooren 2012) or *Libocedrus* (Petrini 1982; Dennis 1963).

Ombrophila costantinii (Boud.) Baral

Specimen data: Vlasina, Polom, 42.759578° N, 22.324146° E, on the leaves of *Carex rostrata*, leg. D. Stojanović, det. D. Savić, 11.10.2023, F.G. 1924. (Fig. 4).

Description: Apothecia scattered, discoid, slightly concave, whitish to pale cream, 0.2–0.5 *mm* in diameter, with shorter or longer stalks; margin distinct, smooth; outer side the same color as the hymenium. Asci arising from croziers, cylindrical, 84–95 × 8–8 *µm*, 8-spored, obliquely biseriate, apical ring hemiamyloid (red with IKI). Paraphyses cylindrical, gradually slightly broader towards the top, containing hyaline, elongated cylindrical refractive vacuoles in the upper part. Ascospores cylindric-fusoid, 16.5–29 × 2.1–2.8 *µm*, both ends obtuse to subacute, medium to strongly curved, with numerous oil drops of different sizes, becoming septate (1–3) when overmature. Rhomboid crystals not observed. This specimen is consistent with the description provided by Baral (2022), except for the hemiamyloid apical ring.

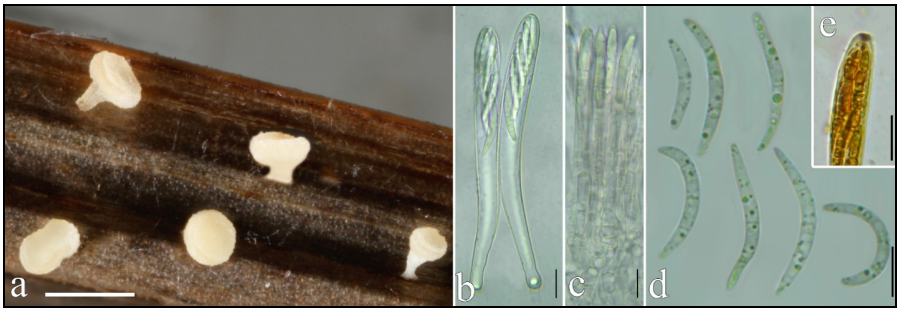

Fig. 4. – *Ombrophila costantinii* – a: Apothecia, *in situ*; b: Asci; c: Paraphyses; d: Ascospores; e: Apical ring red with IKI – Scale bars: 0.5 *mm* for a, 10 *µm* for b–e.

Notes: This small species develops on previous year's culms and leaves of *Carex spp.*, but also on the remains of other wetland monocots, such as *Eriophorum angustifolium* (?), *Glyceria maxima* and *Typha latifolia*. The species has so far been found in Finland, Great Britain, Germany, France and Russia. Due to its rarity in past findings, its taxonomic status (affiliation to the genus *Ombrophila*) has only recently been resolved (Baral 2022).

Ombrophila tetracladia (Abdullah, Descals & J. Webster) Baral

Specimen data: Kopaonik, Gobelja, 43.318726° N, 20.821191° E, on the cone of *Picea abies*, leg. S. Baluban, det. D. Savić, 03.09.2021, F.G. 1628. (Fig. 5).

Description: Apothecia turbinate, single or gregarious, 0.5–1 *mm* diam., white. Asci arising from croziers, cylindric-clavate, 62–70 × 8–8.5 *µm*, 8-spored, biseriate, apical ring euamyloid (blue with IKI). Paraphyses branched below and septate, containing hyaline, elongated cylindrical refractive vacuoles in the upper part, ~2 *µm* wide. Ascospores oval, hyaline, 9–10.3 × 3.5–4.5 *µm*, aseptate, mostly with two medium-sized oil

drops and a few smaller ones. The characteristics of this sample align with those described by Abdullah *et al.* (1981).

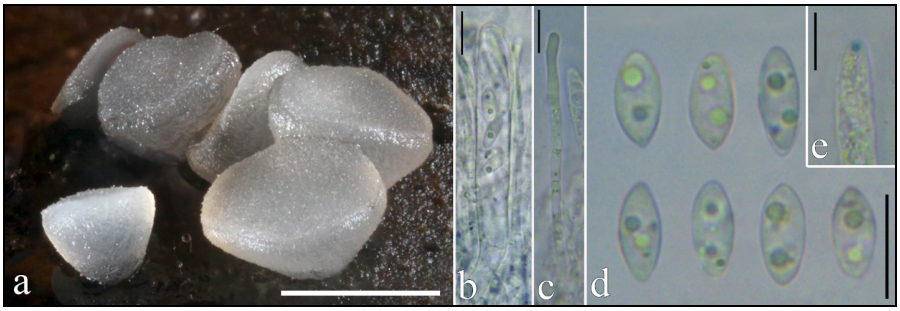

Fig. 5. – *Ombrophila tetracladia* – a: Apothecia, *in situ*; b: Ascus; c: Paraphysis; d: Ascospores; e: Apical ring blue with IKI – Scale bars: 1 *mm* for a, 10 *μm* for b–e.

Notes: For this species, Abdullah *et al.* (1981) report its growth on submerged leaves of *Fagus, Quercus*, and *Salix*, as well as on *Fagus* cupules. The discovery of this species on *Picea* cones, where I also found it, has already been documented by Krieglsteiner (2004).

Fam.: **Helotiaceae** Rehm 1892

Pezizella muscicola Graddon

Specimen data: Cer, Radovašnica, 44.628526° N, 19.488005° E, on *Polytrichum formosum,* leg. & det. D. Savić, 27.04.2022. (Fig. 6).

Description: Apothecia superficial, scattered to gregarious, discoid, with short stipe, 0.1–0.2 *mm* diam., white; outer side the same color as the hymenium, margin not clearly differentiated into hairs. Asci arising from croziers, cylindric-clavate, ~22.5 × 4.5 *μm*, 8-spored, biseriate, apical ring euamyloid (blue with IKI). Paraphyses cylindrical, aseptate, hyaline, 2.5–3 *μm* wide. Ascospores ellipsoid, aseptate, hyaline, 3.3–5.2 × 1.4–1.7 *μm*, with a few small oil drops at ends.

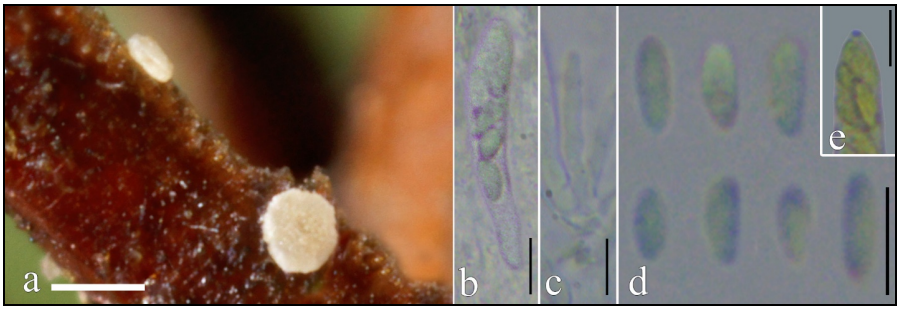

Fig. 6. – *Pezizella muscicola* – a: Apothecia, *in situ*; b: Ascus; c: Paraphysis; d: Ascospores; e: Apical ring blue with IKI – Scale bars: 0.2 *mm* for a, 5 *μm* for b–e.

Notes: This bryophilous species (type specimen described on *Brachythecium*) is extremely rare, and aside from the original, rather brief description provided by Graddon (1977), no other records for comparison can be found in the literature. There is an unpublished record from Spain (Baral 2024) which matches most of the characteristics of my specimen, with the exception that the asci in my sample are amyloid, while those in the Spanish specimens are inamyloid. It is evident that additional specimens and more detailed analyses are needed to clarify the taxonomic position of this species, which is likely currently misclassified. Baral (pers. comm.) suggests that this species most likely belongs to the genus *Psilachnum* (Pezizellaceae).

Pezizella rufescens Velen.

Specimen data: Fruška Gora, Iriški venac, 45.153335° N, 19.835109° E, on the soil in the deciduous forest, leg. & det. D. Savić, 25.10.2022, F.G. 1795. (Fig. 7).

Description: Apothecia scattered, sessile, discoid at first and then pulvinate, 0.6–1.5 *mm* diam., white; outer side the same color as the hymenium, margin somewhat pronounced. Asci arising from croziers, cylindric-clavate, 75–86 × 7.3–8.6 *μm*, 8-spored, biseriate, ascus apex inamyloid. Paraphyses cylindrical, aseptate, hyaline, 3 *μm* wide, in the upper part with refractive vacuoles. Ascospores ellypsoid, aseptate, hyaline, 6–7.3 × 3.1–3.6 *μm*, with a few small oil drops on the ends. The margine consists of elongated cells (10–20 *μm*) similar to paraphyses, only slightly wider, with large round refractive vacuoles.

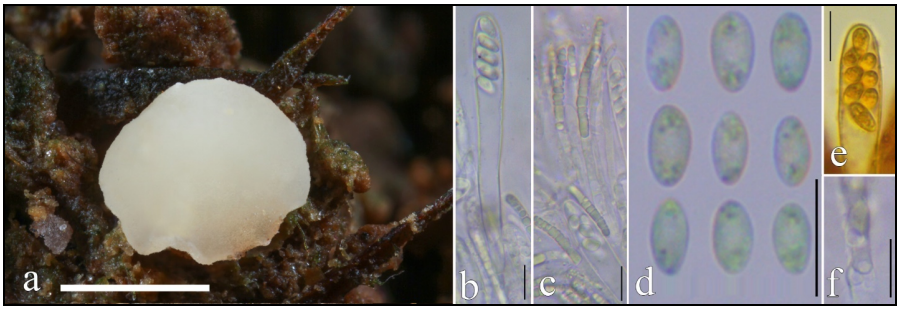

Fig. 7. – *Pezizella rufescens* – a: Apothecia, *in situ*; b: Ascus; c: Paraphyses; d: Ascospores; e: Ascus apex inamyloid; f: Ascus base, crozier+ – Scale bars: 1 *mm* for a, 10 *μm* for b–f.

Notes: The collected specimens developed directly on the ground among moss in a deciduous forest. No remnants of wood or any herbaceous plants were observed in the soil itself. Like the previous species, this one is also rarely found, and the only brief description available can be found in Velenovský (1934). The only additional record and analysis, also from

Spain, can be seen in Baral (2024), which largely corresponds with my specimen, except that the asci are amyloid. This species will undoubtedly undergo a taxonomic reclassification in the future. According to Baral (pers. comm.), the relatinship of this species is likely within the Tricladiaceae (= Helotiaceae s.l.).

Cyathicula cacaliae (Pers.) Dennis

Specimen data: Fruška Gora, Popovica, 45.185573° N, 19.817975° E, on dead stem and leaves of grass (Poaceae), leg. & det. D. Savić, 11.04.2022, F.G. 1710. (Fig. 8).

Description: Apothecia cup-shaped with short stipe, ~0.5 *mm* diam.; hymenium light brown; outer side and margine dark brown, scurfy. Asci arising from croziers, cylindric-clavate, 55–60 × 5–5.5 *μm*, 8-spored, irregularly uniseriate to biseriate, apical ring euamyloid (blue with IKI). Paraphyses cylindrical, ~2 *μm* wide, 1-septate, filled with small vacuoles. Ascospores fusiform with obtuse ends, slightly inequilateral, 8.4–14 × 1.9–2.4 *μm*, aseptate, smooth, hyaline, without oil drops or with small ones at each end. Hairs brown, covered with crystals. This observation is in agreement with the description given by Carpenter (1981).

Notes: This species occurs on the remains of various herbaceous plants (Carpenter 1981).

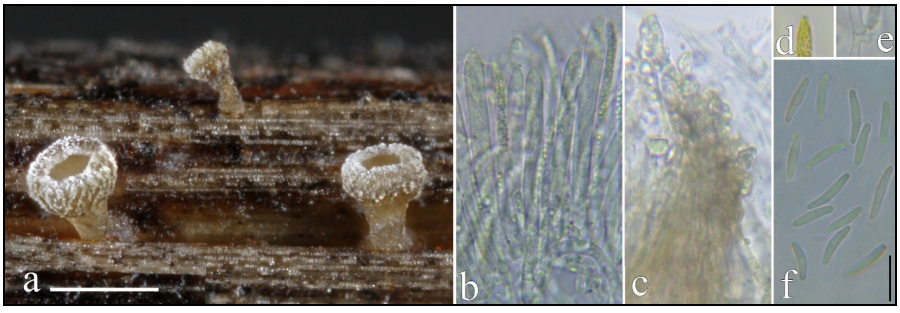

Fig. 8. – *Cyathicula cacaliae* – a: Apothecia, *in situ*; b: Asci and Paraphyses; c: Hairs; d: Apical ring blue with IKI; e: Ascus base, crozier+; f: Ascospores – Scale bars: 0.5 *mm* for a, 10 *μm* for b–f.

Cyathicula nigrofusca (Rehm.) Baral

Specimen data: Fruška Gora, Rakovac, 45.208469° N, 19.778144° E, on dead stem of planted bamboo, leg. & det. D. Savić, 07.03.2023, F.G. 1868. (Fig. 9).

Description: Apothecia cup-shaped with short stipe, 0.5–1.5 *mm* diam.; hymenium light brown; outer side and margine dark brown, slightly scurfy. Asci arising from croziers, 43–52 × 5.1–5.9 *μm*, 8-spored, cylindric-clavate, irregularly uniseriate to biseriate, ascus apex inamyloid. Para-

physes cylindrical, ~2 *μm* wide, gradually slightly broader towards the top (~3 *μm*), septate, filled with small vacuoles. Ascospores fusiform with obtuse ends, slightly inequilateral, 7–10.1 × 1.7–2 *μm*, aseptate, smooth, hyaline, with small oil drops at each end. Hairs brown, short, consisting of 2–3 cells, apical cell slightly inflated, covered with brownish crystals. This sample in most characters closely matches the description given by Carpenter (1981), except for the dimensions of the ascospores, which are a somewhat narrower on my sample.

Notes: This species occurs on the remains of various herbaceous plants (Carpenter 1981).

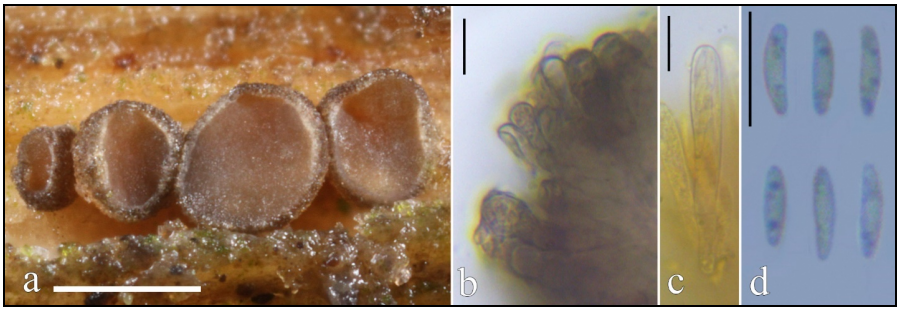

Fig. 9. – *Cyathicula nigrofusca* – a: Apothecia, *in situ*; b: Marginal hairs; c: Ascus apex inamyloid; d: Ascospores – Scale bars: 0.5 *mm* for a, 10 *μm* for b–d.

Gloeotinia juncorum (Velen.) Baral

Specimen data: Vlasina, Bratašnica, 42.695995° N, 22.320870° E, on the fruits of *Juncus* sp. on the ground, leg. & det. D. Savić, 12.07.2021, F.G. 1585. (Fig. 10).

Description: Apothecia light yellow, shallow cup-shaped to almost flat with short to long stipe (lighter than the hymenium and hairy at base), 1–1.5 *mm* diam.; outer side same color as hymenium, smooth; margin is not pronounced. Asci arising from croziers, cylindric-clavate, 130–140 × 8.5–10 *μm*, uniseriate, ascus apex inamyloid. Paraphyses cylindric, 2–3 *μm*

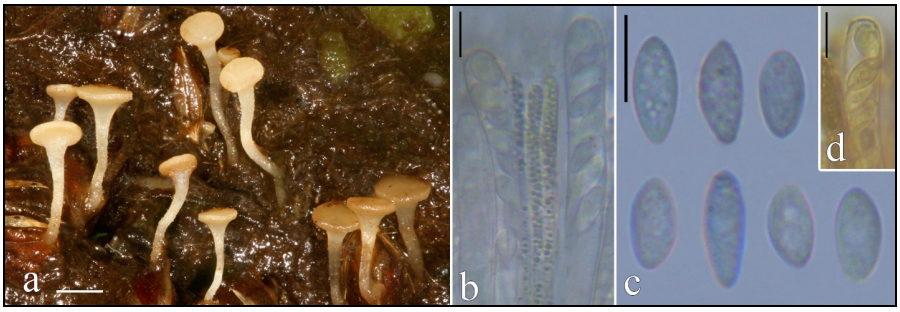

Fig. 10. – *Gloeotinia juncorum* – a: Apothecia, *in situ*; b: Asci and Paraphyses; c: Ascospores; d: Ascus apex inamyloid – Scale bars: 1 *mm* for a, 10 *μm* for b–d.

wide, filled with refractive vacuoles. Ascospores ellipsoid, aseptate, with small oil drops, 10.4–14 × 5–5.5 *µm*. This specimen is consistent with the description provided by Engel & Hanff (1987).

Notes: This species is found solely on the last year's fruits of *Juncus* spp. on a very wet soil.

Hymenoscyphus rokebyensis (Svrček) Matheis

Specimen data: Fruška Gora, Papratski do, 45.141584° N, 19.632111° E, on the cupula of *Fagus sylvatica* on the ground, leg. & det. D. Savić, 28.10.2023, F.G. 1933. (Fig. 11).

Description: Apothecia broadly cupulate with short stipe, scattered to gregarious, whitish to light ochre, 1–1.3 *mm* diam.; outer side same color as hymenium, smooth. Asci arising from simple septa, cylindric-clavate, 100–110 × 9–9.5 *µm*, apical ring euamyloid (blue with IKI), biseriate. Paraphyses filiform, ~2 *µm* diam., filled with refractive vacuoles. Ascospores irregularly ellipsoid to turbinate, rounded at the upper end and tapered towards the lawer end, aseptate (mature with 1 septum), with small oil drops, 12–14.2 × 4.4–5 *µm*. This sample closely matches the description given by Lizon (1992).

Notes: This species exclusively grows on the fallen cupules of *Fagus* and is widely distributed.

Fig. 11. – *Hymenoscyphus rokebyensis* – a: Apothecia, *in situ*; b: Ascus; c: Paraphyses; d: Ascospores; e: Apical ring blue with IKI – Scale bars: 0.5 *mm* for a, 10 *µm* for b–e.

Hymenoscyphus vernus (Boud.) Dennis

Specimen data: Tara, Crveni potok, 43.917724° N, 19.421920° E, on the wood of *Alnus glutinosa*, leg. & det. D. Savić, 12.07.2022, F.G. 1753 (Fig. 12); Golija, Rudno, 43.400624° N, 20.439209° E, on the wood of *Alnus glutinosa*, leg. & det. D. Savić, 30.06.2023, F.G. 1905.

Description: Apothecia scattered, discoid, slightly convex, creamy yellow, 1–3 *mm* in diameter, with stipe 1–4 *mm* long which is blackish in the lower part and more or less downy; the outher side lighter then

hymenium. Asci arising from simple septa, cylindric-clavate, 65–75 × 7.8–8.2 *μm*, 8-spored, biseriate, apical ring euamyloid (blue with IKI). Paraphyses cylindric, septate, slightly inflated (–3 *μm*) towards the rounded tip, containing refractive vacuoles in upper part. Ascospores narrowly elliptical with rounded tips, 10–12.8 × 2.8–4 *μm*, aseptate, hyaline, smooth. This specimen agrees with the description reported by Capoen (2010).

Fig. 12. – *Hymenoscyphus vernus* – a: Apothecia, *in situ*; b: Ascus; c: Paraphyses; d: Ascospores; e: Apical ring blue with IKI – Scale bars: 1 *mm* for a, 10 *μm* for b–e.

Notes: This species grows on dead twigs of trees and shrubs, as well as woody remains of herbs, always in very wet places (Breitenbach & Kränzlin 1984). The description shown refers to a sample collected on Mount Tara.

Symphyosirinia chaerophylli Svrček

Specimen data: Tara, Crveni potok, 43.918644° N, 19.422950° E, on seeds of *Chaerophyllum hirsutum* on the ground, leg. & det. D. Savić, 15.07.2022, F.G. 1762. (Fig. 13).

Description: Apothecia solitary, in the beginning broadly cup-shaped, then flattened, narrowly margined, 1.8–2 *mm* diam., light yellow to ocher, with hairy stalk 2–4 *mm* long, outer side lighter than hymenium and slightly

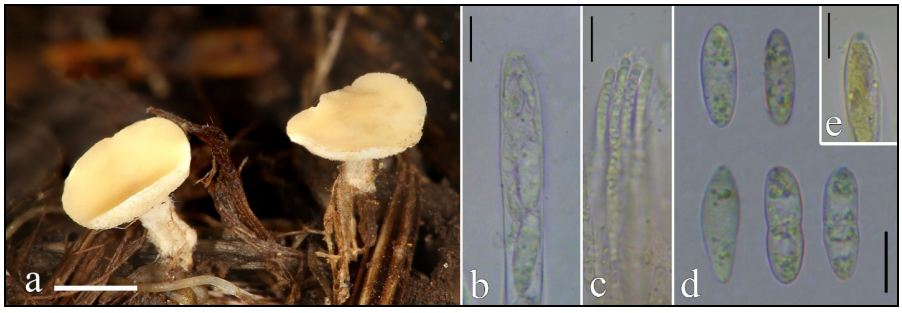

Fig. 13. – *Symphyosirinia chaerophylli* – a: Apothecia, *in situ*; b: Ascus; c: Paraphyses; d: Ascospores; e: Apical ring blue with IKI – Scale bars: 1 *mm* for a, 10 *μm* for b–e.

fibrillous. Asci arising from crozier, cylindric-clavate, 120–140 × 8–9 um, 8-spored, apical ring euamyloid (blue with IKI). Paraphyses cylindric, ~2 *μm* wide, filled with refractive vacuoles. Ascospores obtuse fusoid, barely tapering apically, inequilateral, 15.8–17 × 4.8–5.8 *μm*, hyaline, with small oil drops, aseptate (or rarely with one pseudoseptum). Anamorph not found. The sample conforms to the description provided by Svrček (1989).

Notes: This species grows on seeds of *Chaerophyllum hirsutum* on the ground. It is most similar to *Ch. angelicae* (these two species were previously considered synonyms). For details on the differences, refer to Baral (1994).

Fam.: **Heterosphaeriaceae** Rehm 1888

Heterosphaeria veratri Nespiak & E. Müll.

Specimen data: Vlasina, Ignjatova česma, 42.733266° N, 22.280013° E, on the dead leaves of *Veratrum album*, leg. & det. D. Savić, 15.07.2021, F.G. 1579. (Fig. 14).

Description: Apothecia dark brown to black, sessile, scattered, erumpent from the epidermis, seated on a dense subiculum, initially round and then cup-shaped, often irregularly compressed, 0.3–0.8 *mm* in diam., the margin with distinct teeth. Asci arising from croziers, cylindric-clavate, 80–86 × 10–11 *μm*, apical ring hemiamyloid (red with IKI). Paraphyses filiform, simple, about 1.5 *μm* wide, septate, inflated at the tip (3–4 *μm*), exceeding the asci. Ascospores elongate-ellipsoidal, often slightly curved, mature ascospores with one median to submedian septum, 13.3–21.3 × 3.8–5.2 *μm*. The features of this specimen are in line with the description by Leuchtmann (1987).

Notes: *Heterosphaeria veratri* is host-specific and occurs only on dead stems and leaves of *Veratrum album*. European white hellebore (*V. album*) is a tall herbaceous perennial plant that is widely distributed in the higher mountains of Serbia. *H. veratri* is also probably a common species, but it

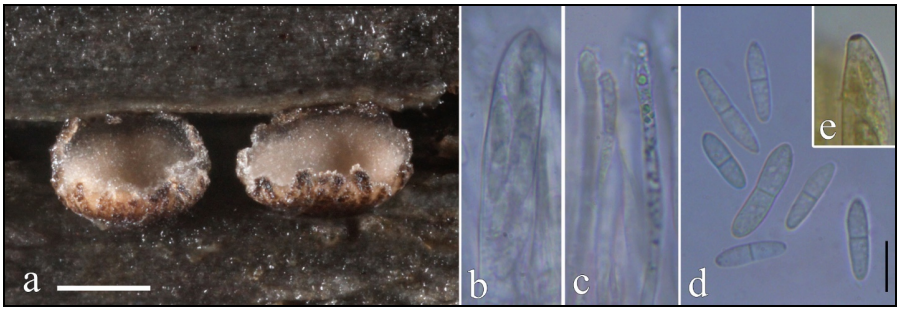

Fig. 14. – *Heterosphaeria veratri* – a: Apothecia, *in situ*; b: Ascus; c: Paraphyses; d: Ascospores; e: Apical ring red with IKI – Scale bars: 0.5 *mm* for a, 10 *μm* for b–e.

was not easy to find; several dozen dead plants were examined before it was observed on one of them.

Fam.: **Hyaloscyphaceae** Nannf. 1932

Cistella chlorosticta (E.P. Fr.) Nannf.

Specimen data: Fruška Gora, Crveni čot, 45.163880° N, 19.714281° E, bark of the branch of *Populus alba*, leg. & det. D. Savić, 13.11.2024, F.G. 2051. (Fig. 15).

Description: Apothecia cup-shaped, 0.2–0.4 *mm* diam., superficial, scattered to gregarious, sessile, ochraceous; the outside is the same color as the hymenium, margine prominent, initially bent inward, with whitish hairs. Asci arising from croziers, cylindric-clavate, 35–40 × 6 *µm*, 8-spored, ascus apex inamyloid. Paraphyses cylindrical, gradually slightly broader towards the top, septate, 1.5–2 *µm* wide. Ascospores ellipsoid, straight, some narrowed at the lower end, hyaline, aseptate, without oil drops, 5.3–6.9 × 2–2.1 *µm*. Hairs subclavate, septate, hyaline, 20–30 × 3–3.5 *µm*, apically finely warted, smooth below. The sample conforms to the description provided by Phillips (1891).

Notes: This species is commonly found on the bark of *Acer, Alnus*, and *Ulmus* (Phillips 1891). Its distribution is difficult to estimate because it is rarely documented. Phillips (1891) provides a relatively brief description, which was common in older publications, with spore dimensions of 2–3 × 1 *µm*, which cannot possibly be accurate. An even shorter description can be found in Dennis (1949), with spore measurements 4–5 × 1–1.5 *µm* that are slightly smaller than those of my specimen. However, several documented findings, as seen in Baral (2024), show that spore dimensions vary, so my measurements fall within the range of variation observed in this species.. Additionally, in some collections, small oil drops at the ends are clearly visible, which were not noticeable in my specimen.

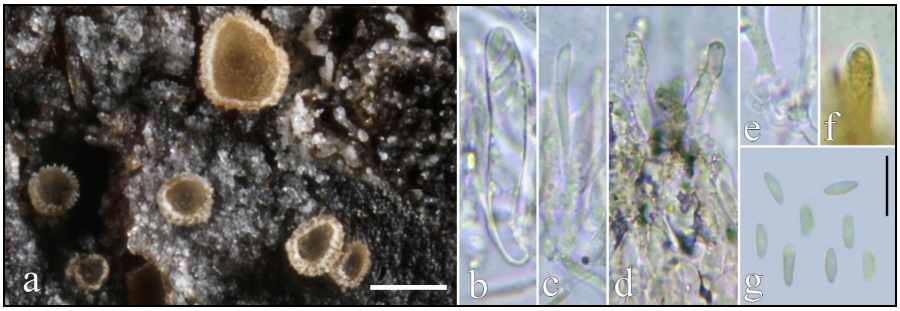

Fig. 15. – *Cistella chlorosticta* – a: Apothecia, *in situ*; b: Ascus; c: Paraphyses; d: Hairs; e: Ascus base, crozier+; f: Ascus apex inamyloid; g: Ascospores – Scale bars: 0.2 *mm* for a, 10 *µm* for b–g.

Cistella crassipila (Raitv.) Raitv.

Specimen data: Fruška Gora, Banja Kulina, 45.145173° N, 19.400259° E, on the corn cobs of *Zea mays* on the ground, leg. & det. D. Savić, 01.07.2021, F.G. 1610. (Fig. 16).

Description: Apothecia cup-shaped, 0.2–0.4 *mm* diam., superficial, scattered to gregarious, sessile to shortly stipitate, white to pale ochraceous; the outside is the same color as the hymenium, margine and outside with whitish hairs. Asci arising from croziers, cylindric-clavate, 55–60 × 7.5 *µm*, 8-spored, apical ring euamyloid (blue with IKI). Paraphyses cylindrical, septate, pointed, 1.5–2 *µm* wide. Ascospores cylindric-ellipsoid, straight, some narrowed at the lower end, sometimes slightly curved, hyaline, aseptate (rarely with one septum), containing many small oil drops, (6.4–) 8–11.1 × 2.5–3.3 *µm*. Hairs subclavate, septate, hyaline, thinwalled, 20–80 × 6.4–12.7 *µm*, apically finely warted, smooth below.

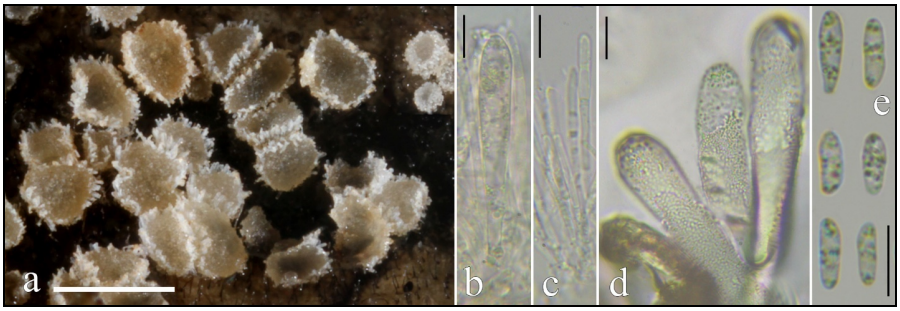

Fig. 16. – *Cistella crassipila* – a: Apothecia, *in situ*; b: Ascus; c: Paraphyses; d: Hairs; e: Ascospores – Scale bars: 0.5 *mm* for a, 10 *µm* for b–e.

Notes: The description of the species found largely matches the one provided by Raitviir (2004), but there are also significant differences. Raitviir (2004) lists *Sambucus ebulus*, a dicotyledonous plant, as the substrate, while my specimen was found on the monocot *Zea mays*. Additionally, in Raitviir's description, it is clearly stated that several (2–4) lipid guttules are present in the ascospores, which can also be seen in some unpublished analyses (see Baral 2024). However, in the ascospores I examined, all guttules were small. To determine whether these are the same or different species, further research and genetic comparison are necessary.

Cistella fugiens (W. Phillips) Matheis

Specimen data: Cer, Radovašnica, 44.628526° N, 19.488005° E, on dead leaf of *Juncus* sp., leg. & det. D. Savić, 27.04.2022, F.G. 1713. (Fig. 17).

Description: Apothecia cup-shaped, superficial, scattered to gregarious, sessile, 0.1–0.2 *mm* diam., whitish; the outside is the same color as the hymenium, covered at the flanks and margin with short whitish hairs. Asci arising from simple septa, cylindrical to cylindric-clavate, 8– or 4-spored,

22–28 × 4.8–5.7 *µm*, apical ring euamyloid (blue with IKI). Paraphyses cylindrical, ~1.5 *µm* wide. Ascospores fusoid, straight, some slightly curved, hyaline, aseptate, 7–9.7 × 1.5–1.9 *µm*. Hairs cylindrical to clavate, aseptate, hyaline, 10–15 × 3 *µm*, apically coarsely warted, smooth below. This observation is in agreement with the description given by Raitvir (2004).

Notes: This species is widespread and grows mostly on the remains of *Juncus* spp. but also on other species from the family Cyperaceae, also Poaceae (Svrček 1979).

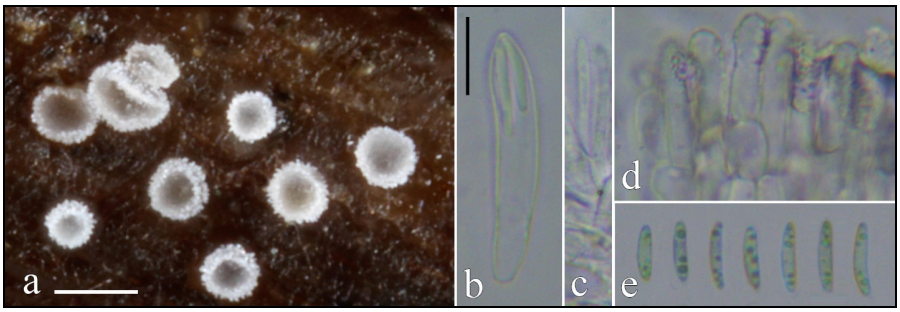

Fig. 17. – *Cistella fugiens* – a: Apothecia, *in situ*; b: Ascus; c: Paraphyses; d: Hairs; e: Ascospores – Scale bars: 0.2 *mm* for a, 10 *µm* for b–e.

Hamatocanthoscypha laricionis (Velen.) Svrček

Specimen data: Fruška Gora, Iriški venac, 45.152106° N, 19.840371° E, on the cone of *Pinus strobus*, leg. & det. D. Savić, 21.10.2021, F.G. 1645; Fruška Gora, Novo Hopovo, 45.127469° N, 19.848168° E, on needles of *Pinus sylvestris*, leg. & det. D. Savić, 26.10.2021, F.G. 1646; Fruška Gora, Divoš, 45.126930° N, 19.513034° E, on the cone of *Cedrus deodara*, leg. & det. D. Savić, 25.11.2021, F.G. 1682. (Fig. 18).

Description: Apothecia superficial, scattered to gregarious, with short stipe, 0.1–0.4 *mm* diam., shallow cup-shaped to almost flat, whitish; outer

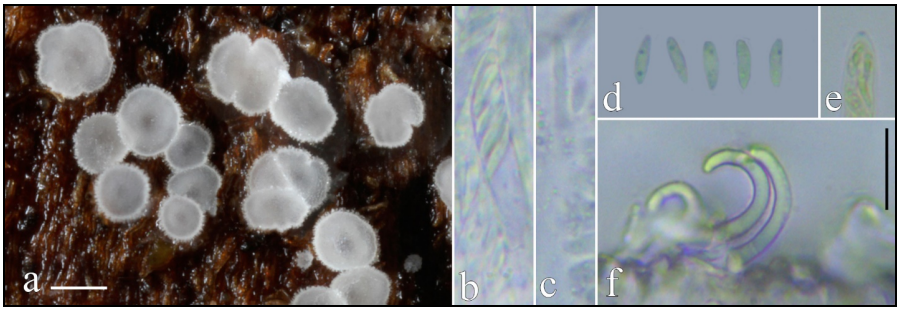

Fig. 18. – *Hamatocanthoscypha laricionis* – a: Apothecia, *in situ*; b: Ascus; c: Paraphysis; d: Ascospores; e: Apical ring blue with IKI; f: Hairs – Scale bars: 0.2 *mm* for a, 10 *µm* for b–f.

side same color as hymenium with short white hairs, particularly at the margin. Asci arising from croziers, cylindric-clavate, 25–30 × 4.4–4.8 *µm*, 8-spored, biseriate, apical ring euamyloid (blue with IKI). Paraphyses filiform, hyaline, simple, not exceeding the asci, 1.5–2 *µm* wide. Ascospores subfusiform, aseptate, hayline, without or with few small oil drops, 6–7 × 1.7–2.2 *µm*. Hairs cylindrical to narrowly conical, uncinate, straight or some of them curved, tapered at ends, septate at the base, hyaline, smooth, 25–30 × 2–3 *µm*. The characteristics of this sample align with those described by Raitviir (2004).

Notes: This species is widely distributed in the Northern Hemisphere and grows on fallen cones and needles of conifers (Raitviir 2004). Description refers to samples found on *Pinus strobus*.

Hamatocanthoscypha uncinata (W. Phillips) Huhtinen

Specimen data: Fruška Gora, Bešenovački prnjavor, 45.116963° N, 19.719835° E, on needles of *Pinus nigra*, leg. & det. D. Savić, 09.11.2023, F.G. 1937. (Fig. 19).

Description: Apothecia superficial, solitary, sessile on a narrow base, 0.1–0.2 *mm* diam., cup-shaped, ochraceous, margin a little darker; outer side same color as hymenium with short hairs, particularly at the margin. Asci arising from croziers, cylindric-clavate, 40–51 × 5.8–6.5 *µm*, 8-spored, biseriate, apical ring euamyloid (blue with IKI). Paraphyses cylindrical to subclavate, hyaline, simple, not exceeding the asci, 2–3 *µm* wide. Ascospores cylindric to cylindric-ellipsoid, aseptate, hayline, without oil drops, 6–10.3 × 1.8–2.6 *µm*. Hairs cylindrical, tapered at ends, uncinate, curved, hyaline, smooth, 20–25 × 2–3 *µm*. The characteristics of this sample align with those described by Raitviir (2004).

Notes: This species is widely distributed in the Northern Hemisphere and grows on fallen needles of *Pinus* spp. (Raitviir 2004).

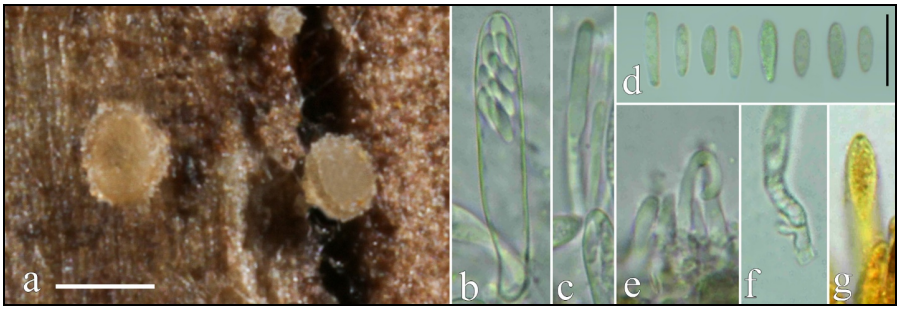

Fig. 19. – *Hamatocanthoscypha uncinata* – a: Apothecia, *in situ*; b: Ascus; c: Paraphysis; d: Ascospores; e: Hairs; f: Ascus base, crozier+; g: Apical ring blue with IKI – Scale bars: 0.2 *mm* for a, 10 *µm* for b–g.

Hyalopeziza trichodea (W. Phillips & Plowr.) Raitv.

Specimen data: Fruška Gora, Iriški venac, 45.150534° N, 19.828647° E, on needles of *Pinus nigra*, leg. & det. D. Savić, 02.11.2021, F.G. 1667. (Fig. 20).

Description: Apothecia superficial, scatered to gregarious, with short stipe, 0.2–0.5 *mm* diam., cup-shaped, brownish; outer side slightly darker than the hymenium, densely covered with long white hairs, particularly at the margin. Asci arising from croziers, cylindric, 40–48 × 4.5–5 *μm*, 8-spored, biseriate, ascus apex inamyloid. Paraphyses cylindrical, hyaline, simple, ~2 *μm* wide, with few refractive vacuoles. Ascospores fusoid, aseptate, hayline, with oil drops at the ends, 5.8–7.8 × 1.9–2.2 *μm*. Hairs cylindrical, tapered at ends, curved at the base but mostly straight, glassy thick-walled, hyaline, smooth, 150–180 × 3–4 *μm*. This specimen agrees with the description reported by Raitviir (2004).

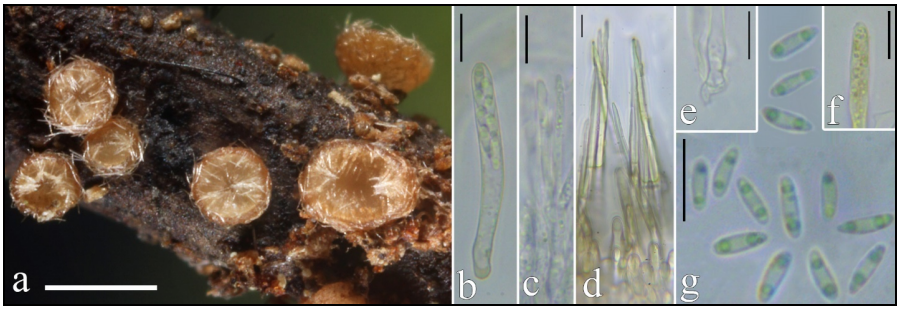

Fig. 20. – *Hyalopeziza trichodea* – a: Apothecia, *in situ*; b: Ascus; c: Paraphyses; d: Hairs; e: Ascus base, crozier+; f: Ascus apex inamyloid; g: Ascospores – Scale bars: 0.5 *mm* for a, 10 *μm* for b–g.

Notes: This species growing on fallen needles of *Pinus* spp. and so far it has only been recorded in Europe. The difference compared to the description given by Raitvir (2004) is in the guttulation of the Ascospores. He writes that ascospores are without oil drops, but they are clearly visible in all ascospores.

Hyaloscypha albohyalina (P. Karst.) Boud.

Specimen data: Vlasina, Vlasina Rid, 42.731146° N, 22.333687° E, on rotten wood of *Betula pendula*, leg. D. Stojanović, det. D. Savić, 11.10.2023, F.G. 1928. (Fig. 21).

Description: Apothecia shallow cup-shaped, superficial, gregarious, sessile, 0.2–0.8 *mm* diam., whitish when fresh, yellowish to brownish when dry; outer side same color as hymenium, densely covered, particularly at the margin, with short hairs. Asci arising from croziers, cylindric-clavate, 57–68 × 9.2–10.2 *μm*, 8-spored, biseriate, apical ring euamyloid (blue with IKI). Paraphyses filiform, 1.5–2 *μm* wide, hyaline. Ascospores cylindric-

ellipsoid, aseptate (mature with 1-septum), often slightly curved, with lots of small oil drops, especially at the ends, 9.3–11.5 × 3.4–4 *µm*. Hairs narrowly conical with inflated base, straight or slightly curved, aseptate, hyaline, thin-walled, in the lower part smooth, in the upper part with low, rounded warts, 30–60 × 3–4 *µm*. This sample closely matches the description given by Raitvir (2004).

Notes: This species is widely distributed in the Northern Hemisphere (Raitviir 2004) and grows on decaying deciduous and coniferous wood.

Fig. 21. – *Hyaloscypha albohyalina* – a: Apothecia, *in situ*; b: Asci and Paraphyses; c: Hairs; d: Hairs; e: Ascus base, crozier+; f: Ascospores – Scale bars: 0.5 *mm* for a, 10 *µm* for b–e.

Hyaloscypha bulbopilosa (Feltgen) Baral

Specimen data: Fruška Gora, Novo Hopovo, 45.127382° N, 19.849377° E, on the petiole of leaf of *Juglans regia*, leg. & det. D. Savić, 26.10.2021, F.G. 1647. (Fig. 22).

Description: Apothecia cup-shaped, with short stipe, 0.15–0.2 *mm* diam., whitish; outer side same color as hymenium, densely covered, particularly at the margin, with long white straight hairs. Asci arising from croziers, cylindric-clavate, 35–40 × 6 *µm*, biseriate, apical ring euamyloid (blue with IKI). Paraphyses cylindrical, straight, simple, slightly inflated at

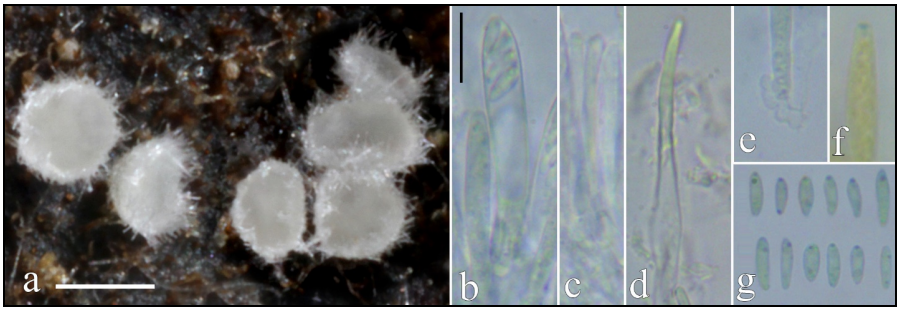

Fig. 22. – *Hyaloscypha bulbopilosa* – a: Apothecia, *in situ*; b: Ascus; c: Paraphyses; d: Hair; e: Ascus base, crozier+; f: Apical ring blue with IKI; g: Ascospores – Scale bars: 0.2 *mm* for a, 10 *µm* for b–g.

top, ~2 *μm* wide, with 1 septa. Ascospores narrowly ellipsoid, some slightly curved, 4.7–8 × 1.5–2.4 *μm*, with one small oil drop at the ends. Hairs with bulbose base and gradually narrowing and attenuated at tip, up to 80 *μm* long, 5 *μm* broad at base, smooth. This observation is in agreement with the description given by Huhtinen (1990).

Notes: This species is known from Europe, Asia, and North America, displaying a wide ecological amplitude, fruiting on both hardwood and softwood, including conifers and deciduous trees, as well as on smaller ligneous substrates, as reported by Huhtinen (1990).

Hyaloscypha leucostigma (Fuckel) Baral

Specimen data: Fruška Gora, Iriški venac, 45.148429° N, 19.832585° E, on the branch of *Quercus* sp., leg. & det. D. Savić, 25.10.2022, F.G. 1811. (Fig. 23).

Description: Apothecia shallow cup-shaped, superficial, scattereg to gregarious, subsessile, 0.2–0.4 *mm* diam., initially whitish and then yellowish-grey; outer side same color as hymenium, covered with short hairs, particularly at the margin. Asci arising from simple septa, cylindric-clavate, 70–82 × 9.5–10.4 *μm*, 8-spored, biseriate, apical ring euamyloid (blue with IKI). Paraphyses filiform, simple, septate, ~2 *μm* wide, hyaline. Ascospores cylindric-ellipsoid, aseptate, often slightly curved, with lots of small oil drops, especially at the ends, 9.4–14.2 × 2.9–3.6 *μm*. Hairs narrowly conical with inflated base, slightly curved, aseptate, hyaline, thin-walled, smooth, up to 20 *μm* long. The sample conforms to the description provided by Dennis (1975) or Quijada *et al.* (2017).

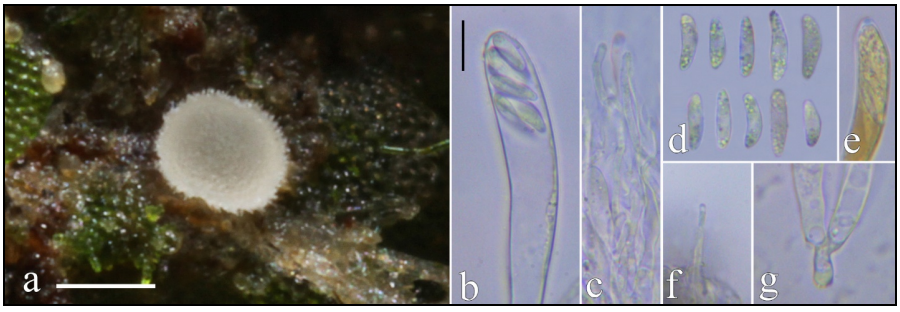

Fig. 23. – *Hyaloscypha leucostigma* – a: Apothecia, *in situ*; b: Ascus; c: Paraphyses; d: Ascospores; e: Apical ring blue with IKI; f: Hair; g: Ascus base, crozier – Scale bars: 0.2 *mm* for a, 10 *μm* for b–g.

Notes: This species is widely distributed in the Northern Hemisphere. It was also found in Australia, New Zealand, as well as South America (Quijada *et al.* 2017) and mostly grows on decaying deciduous wood and much less often on coniferous wood (Raitvir 2004). The species is very similar to *H. albohylina* and was previously named *H. albohyalina* var.

spiralis or *H. spiralis*. The most obvious difference is that *H. leucostigma* has no crozier.

Hyaloscypha tigillaris (P. Karst.) Raitv.

Specimen data: Golija, Rudno, 43. 438605° N, 20. 461817° E, on the very rotten wood of *Picea abies*, leg. & det. D. Savić, 01.10.2024, F.G. 2041. (Fig. 24).

Description: Apothecia shallow cup-shaped, superficial, scattereg to gregarious, substipitate, 0.2–0.3 *mm* diam., initially whitish and later light reddish brown; outer side same color as hymenium, covered with short hairs, particularly at the margin. Asci arising from simple septa, cylindric-clavate, 52–58 × 8–9.5 *μm*, 8-spored, apical ring euamyloid (blue with IKI). Paraphyses filiform, 1–2 *μm* wide. Ascospores broadly ellipsoid, inequilateral, aseptate, contain mainly two large oil drops or, alongside them, a few smaller ones, 8.3–11.4 × 2.6–3.4 *μm*. Hairs narrowly conical to slightly lageniform, 20–30 × 4–4 *μm*, straight, winding in the upper part, aseptate, hyaline, smooth in the basal part, covered with rounded warts in the upper part. This sample in most characters closely matches the description given by Raitviir (2004), except for the dimensions of the ascospores, which are a little smaller on my sample.

Notes: This species grows on very rotten coniferous wood and is widespread in Europe and North America (Raitviir 2004).

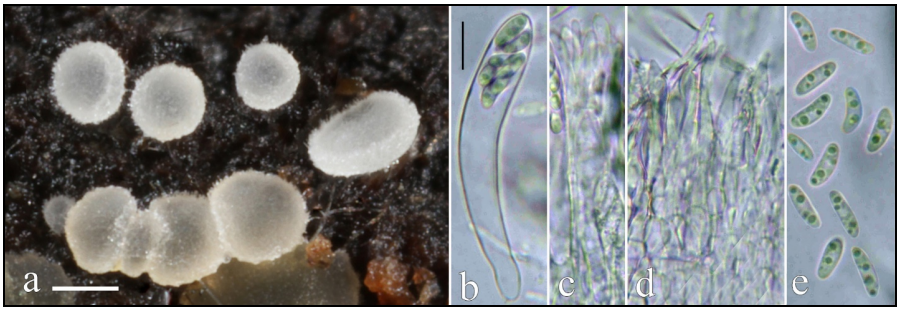

Fig. 24. – *Hyaloscypha tigillaris* – a: Apothecia, *in situ*; b: Ascus; c: Paraphyses; d: Hairs; e: Ascospores – Scale bars: 0.2 *mm* for a, 10 *μm* for b–e.

Unguicularia unguiculata Höhn.

Specimen data: Fruška Gora, Iriški venac, 45.150906° N, 19.836981° E, on needles of *Cedrus deodara* on the ground, leg. & det. D. Savić, 19.04.2023. (Fig. 25).

Description: Perithecia very small, 0.1–0.2 *mm* diam., scattered, superficial, sessile, light ocher, the outer side densely covered with hairs. Asci arising simple septa, cylindrical, 8-spored, 30–55 × 5.8–6.3 *μm*, ascus

apex inamyloid. Paraphyses filiforme, 1–1.5 *μm* wide, filled with vacuoles. Ascospores ellipsoid–fusiform, hyaline, straight to very slightly curved, aseptate, 9.8–12.5 × 2.5–3 *μm*, with small oil drops at each end. Hairs start from a bulbous base, tapering towards the tip, curved, thick–walled, 20–60 *μm* long, 6–9 *μm* wide at the base. This observation is in agreement with the description given by Raschle (1977).

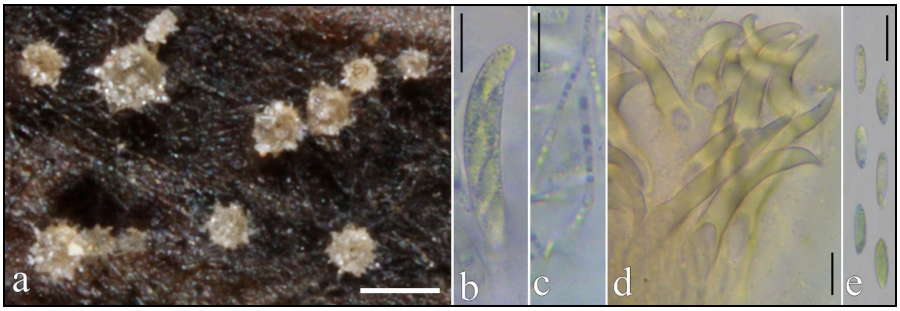

Fig. 25. – *Unguicularia unguiculata* – a: Apothecia, *in situ*; b: Ascus; c: Paraphyses; d: Hairs; e: Ascospores – Scale bars: 0.2 *mm* for a, 10 *μm* for b–e.

Notes: This minute species has so far only been found on needles of *Abies alba* (Baral, pers.comm.), so this is the first finding on needles of another conifer species, i.e. *Cedrus deodara*.

Urceolella aasii S. Olsen & J.H. Haines

Specimen data: Fruška Gora, Iriški venac, 45.153441° N, 19.830796° E, on the dead stem of *Lunaria rediviva*, leg. & det. D. Savić, 19.05.2022, F.G. 1716. (Fig. 26).

Desription: Apothecia urceolate, scattered, superficial, sessile or with a short stipe, orange to ochraceous, 0.2–0.3 *mm* diam., the outer side and margine covered with white hairs. Asci arising from croziers, cylindrical, 8-spored, 45–55 × 5.5–6.5 *μm*, apical ring euamyloid (blue with IKI). Paraphyses cylindrical, not exceeding the asci, 1.5–2 *μm* wide. Excipulum

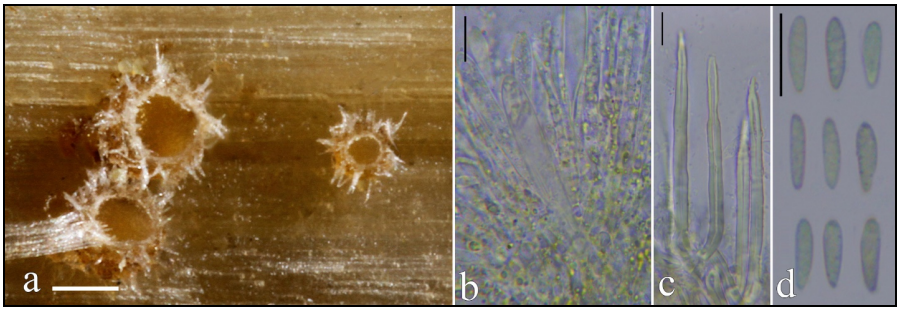

Fig. 26. – *Urceolella aasii* – a: Apothecia, *in situ*; b: Asci and Paraphyses; c: Hairs; d: Ascospores – Scale bars: 0.2 *mm* for a, 10 *μm* for b–d.

with yellowish globose SCBs. Ascospores ellipsoid–fusiform, some of them slightly clavate, straight to very slightly curved, aseptate, 7–9.3 × 1.9–2.5 *µm*, with small oil drops at each end. Hairs cylindrical, tapered, with thick glassy walls, up to 200 *µm* long. The sample conforms to the description provided by Raitviir (2004).

Notes: This species was originally described from samples collected on dead stems of *Urtica dioica* (Olsen *et al.* 1993), but it has since been found on *Ranunculus* and *Adenostyles* (Baral 2024). Thus, my finding on *Lunaria* adds to the list of hosts, which is likely not yet complete.

Urceolella juniperi (Velen.) Huhtinen

Specimen data: Fruška Gora, Đurđevac, 45.123890° N, 19.639612° E, leaf litter under *Juniperus communis*, leg. & det. D. Savić, 11.10.2022, F.G. 1783. (Fig. 27).

Desription: Apothecia cup-shaped, superficial, with a short stipe, 0.6–1 *mm* diam., whitish, the outer side and margine densely covered with white hairs. Asci arising from croziers, cylindrical, 68–80 × 8.8–10 *µm*, 8-spored, apical ring euamyloid (blue with IKI). Paraphyses cylindrical, septate, not exceeding the asci, 2–3 *µm* wide. Ascospores ellipsoid, 1-septate, with small oil drops at each end, 14–18 × 3.7–4.4 *µm*. Hairs cylindrical, tapering in upper part, mostly aseptate (some with two septa), 100–250 *µm* long; walls thin at the base, becoming thicker and glassy toward apex, with globose SCBs. This specimen agrees with the description reported by Raitviir (2004).

Notes: This species usually grows on small debris under *Juniperus* sp. and sometimes on fallen leaves of *Populus* sp. (Raitviir 2004). All specimens found were in the leaf litter under *Juniperus communis*. Some of them were clearly on needles of *Juniperus*, but also on the remains of grasses and *Rosa canina* leaves.

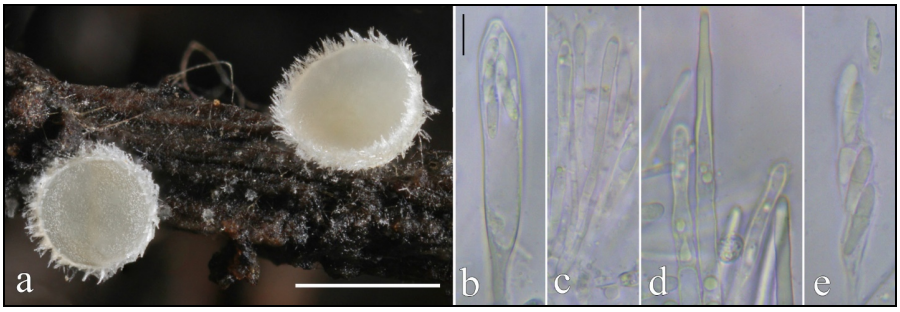

Fig. 27. – *Urceolella juniperi* – a: Apothecia, *in situ*; b: Ascus; c: Paraphyses; d: Hairs; e: Ascospores – Scale bars: 1 *mm* for a, 10 *µm* for b–e.

Fam.: **Hyphodiscaceae** Ekanayaka & K.D. Hyde 2019

Fuscolachnum pteridis (Alb. & Schwein.) J.H. Haines

Specimen data: Gostilje, 43.656446° N, 19.837951° E, on the dead leaves of *Pteridium aquilinum*, leg. & det. D. Savić, 04.06.2021, F.G. 1611. (Fig. 28).

Description: Apothecia globose to cup-shaped, brown, sessile, 0.15–0.2 *mm*, scattered, densely covered with dark brown hairs, white fringe at the margin. Asci arising from croziers, clavate, 28–37 × 5–6.5 *μm*, 8-spored, apical ring euamyloid (blue with IKI). Paraphyses simple, cylindric-clavate, ~2 *μm* in diam., nonseptate. Ascospores 6–10 × 1.5–2 *μm* clavate, rounded at both ends, straight or slightly curved, with small dark oil drops (LBs). Flank hairs brown, 30–60 *μm* long, cylindrical, unevenly curved, septate, densely granulate throughout. Marginal hairs hyaline, to 30 *μm* long, septate, covered with hyaline granules. Except for the ascospores guttulation, in all other characteristics, it completely matches the description given by (Haines 1989a).

Notes: This species is apparently common in much of the temperate region and typically grows on leaves of *Pteridium aquilinum*, but also on some other species of ferns. Regarding the minute oil drops in the ascospores, they are clearly mentioned and illustrated in the paper by Quijada *et al.* (2022).

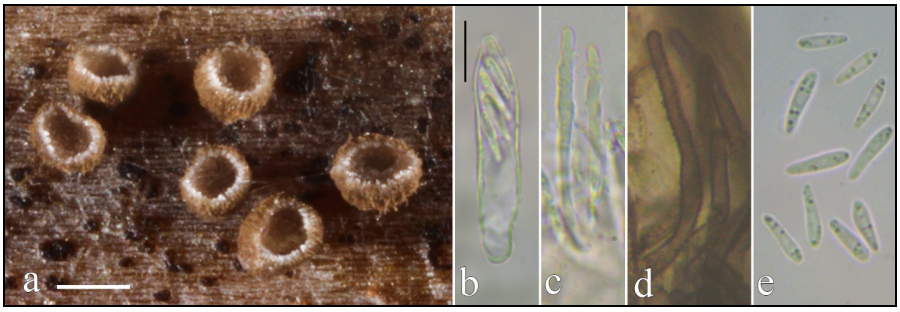

Fig. 28. – *Fuscolachnum pteridis* – a: Apothecia, *in situ*; b: Ascus; c: Paraphyses; d: Hairs; e: Ascospores – Scale bars: 0.2 *mm* for a, 10 *μm* for b–e.

Fam.: **Lachnaceae** Raitv. 2004

Dasyscyphella dryina (P. Karst.) Raitv.

Specimen data: Gostinica, Mijatovići, 43.914962° N, 19.8016186° E, on rotten wood of *Picea abies,* leg. D. Stojanović, det. D. Savić, 21.12.2023. (Fig. 29).

Description: Apothecia superficial, scattered to gregarious, cup-shaped, 0.5–2 *mm* diam., with cylindrical stipe ~0.5mm long, whitish to pale yellowish; outer side and margine covered with whitish hairs. Asci arising

from simple septa, cylindrical, 75–85 × 7–8 *µm*, 8-spored, apical ring euamyloid (blue with IKI). Paraphyses cylindrical, inflated at tips (–5 *µm*), not exceeding the asci. Ascospores ellipsoid to fusiform-ellipsoid, slightly inequilateral, aseptate (mature with 1 septum), 9–15 (–18.5) × 2.7–3 (–3.9) *µm*. Hairs cylindrical, apically very slightly inflated, hyaline, septate, entire length except for the apical cell coarsely granulate, 100–150 *µm* long. The sample conforms to the description provided by Raitvir (2002).

Notes: This species grows on the decaying wood of several different tree species, such as *Picea* sp.*, Populus* sp. and *Fraxinus* sp.. Raitvir (2002) states that it is widely distributed in the Northern Hemisphere but rare, which is also confirmed by Baral (pers.comm.) since there are very few reports of findings.

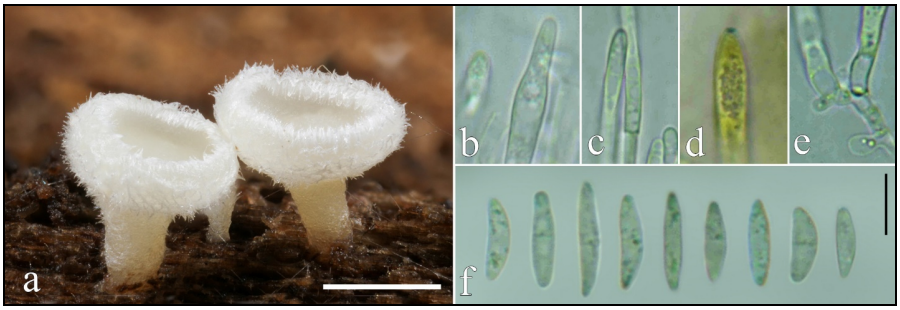

Fig. 29. – *Dasyscyphella dryina* – a: Apothecia, *in situ*; b: Upper part of Paraphysis; c: Upper part of Hair; d: Apical ring blue with IKI; e: Ascus base, crozier-; f: Ascospores – Scale bars: 1 *mm* for a, 10 *µm* for b–f.

Lachnum clavigerum (Svrček) Raitv.

Specimen data: Vlasina, Dejanova reka, 42.667822° N, 22.381589° E, on the dead stem of *Filipendula ulmaria*, leg. & det. D. Savić, 14.07.2021, F.G. 1589 (Fig. 30); Tara, Crveni potok, 43.918644° N, 19.422950° E, on the dead stem of *Filipendula ulmaria*, leg. & det. D. Savić, 15.07.2022, F.G. 1770.

Description: Apothecia superficial, scattered to gregarious, cup-shaped, 0,4–1 *mm* diam., with short stipe, initially white and later yellow; the outer side and margine densely covered with white hairs. Asci arising from simple septa, 34–37 × 4.4–4.7 *µm*, 8-spored, apical ring euamyloid (blue with IKI), biseriate. Paraphyses lanceolate, 4–5 *µm* wide, hyaline, without refractive vacuoles, protruding asci for 17–25 *µm*. Ascospores narrowly fusiform, 6.5–7.5 × 1,5–1,7 *µm*, hyaline, aseptate, eggutulate. Hairs cylindrical, 70–90 × 3–4 *µm*, hyaline, septate, fine-grained, slightly inflated at the tips with firmly attached oxalate crystals. This observation is in agreement with the description given by Svrček (1967).

Notes: This species is described on the remains of *Epilobium angustifolium*, but it can also be found on others, such as *Rubus* sp. and *Aruncus* sp. (Baral 2024), or in my case *Filipendula ulmaria*.

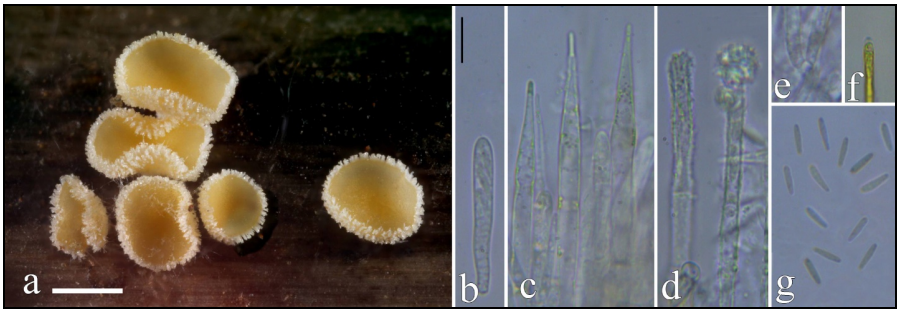

Fig. 30. – *Lachnum clavigerum* – a: Apothecia, *in situ*; b: Ascus; c: Paraphyses; d: Hairs with crystals; e: Ascus base, crozier-; f: Apial ring blue with IKI; g: Ascospores – Scale bars: 0.5 *mm* for a, 10 *μm* for b–g.

Lachnum microsporum Velen., nom.illeg.

Specimen data: Golija, Rudno, 43.418474° N, 20.481170° E, on the dead leaf of *Vaccinium myrtillus*, leg. & det. D. Savić, 01.07.2023. (Fig. 31).

Description: Apothecia superficial, single, cup-shaped, 0,2 *mm*, with short stipe, white; the outer side and margine densely covered with white hairs. Asci arising from simple septa, 27.5–33.5 × 4–4.1 *μm*, 8-spored, biseriate, apical ring euamyloid (blue with IKI). Paraphyses lanceolate, ~5 *μm* wide, hyaline, without refractive vacuoles, protruding asci for 20–25 *μm*. Ascospores narrowly fusiform, 5.5–6 × 1,3–1,6 *μm*, hyaline, aseptate, eggutulate. Hairs cylindrical, 60–70 × 3–4 *μm*, hyaline, septate, fine-grained, at the tips with easily removable oxalate crystals. Although this description was made based on the analysis of only one found apothecia fits well with that given by Velenovský (1934).

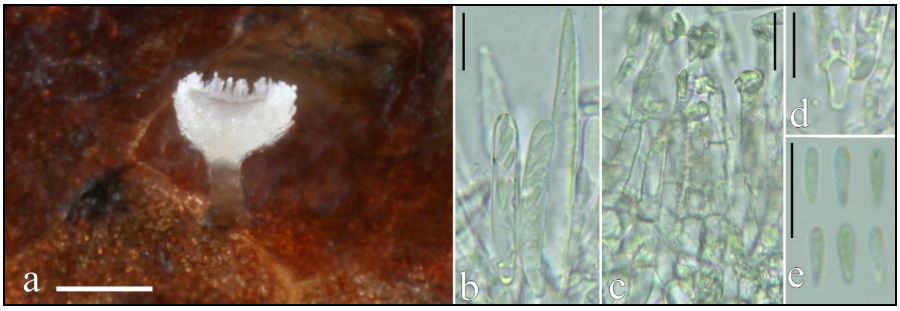

Fig. 31. – *Lachnum microsporum* – a: Apothecia, *in situ*; b: Asci and Paraphyses; c: Hairs with crystals; d: Ascus base, crozier-; e: Ascospores – Scale bars: 0.2 *mm* for a, 10 *μm* for b–f.

Notes: The name *Lachnum microsporum* given by Velenovský (1934) when describing the new species is illegitimate because that name was already used by Torrend (1912) for an apparently different species, so it is necessary to revise it. Otherwise, the species is host specific and grows exclusively on dead branches and leaves of *Vaccinium myrtillus*.

Lachnum nudipes (Fuckel) Nannf.

Specimen data: Zlatibor, Crni Rzav, 43.670707° N, 19.702164° E, on the dead stem of *Filipendula ulmaria*, leg. & det. D. Savić, 04.06.2021, F.G. 1608; Vlasina, Dejanova reka, 42.667822° N, 22.381589° E, on the dead stem of *Filipendula ulmaria*, leg. & det. D. Savić, 14.07.2021, F.G. 1588. (Fig. 32).

Description: Apothecia superficial, scattered to gregarious, cup-shaped, 0,5–1.5 *mm* diam., with short to long stipe (1–2.5 *mm*), initially white and later pale yellow; the outer side, stipe and margine densely covered with white hairs. Asci arising from croziers, cylindric-clavate, 45–45 × 4–4.5 *µm*, 8-spored, biseriate, apical ring euamyloid (blue with IKI). Paraphyses lanceolate, 5–5.5 *µm* wide, hyaline, without refractive vacuoles, protruding asci for 15–20 *µm*. Ascospores narrowly fusiform, 8–12 × 1.8–2 *µm*, hyaline, aseptate, eggutulate. Hairs cylindrical, 70–100 × 4.5–5.5 *µm*, hyaline, septate, fine-grained, inflated at the tips with oxalate crystals. The features of this specimen are in line with the description by Dimitrova (2000).

Notes: This species is most often found on the remains of *Filipendula ulmaria*, but also on some other plants such as e.g. *Epilobium* spp. (Baral 2024) or *Rubus* sp. (Dimitrova 2000).

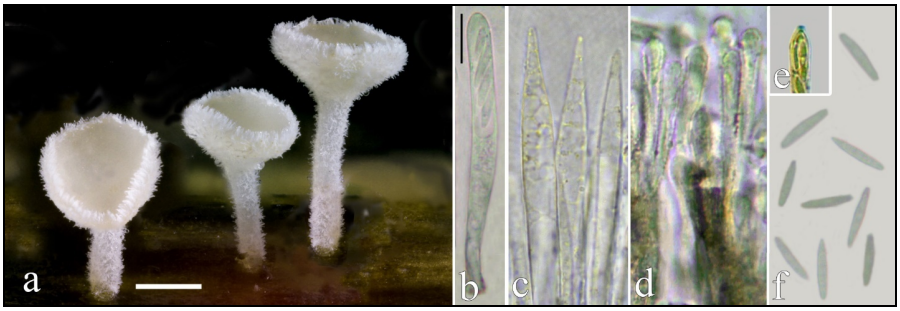

Fig. 32. – *Lachnum nudipes* – a: Apothecia, *in situ*; b: Ascus; c: Paraphyses; d: Hairs; e: Apical ring blue with IKI; f: Ascospores – Scale bars: 0.5 *mm* for a, 10 *µm* for b–f.

Lachnum schoenoplecti Raitv. & P. Blank

Specimen data: Vlasina, Bratašnica, 42.695995° N, 22.320870° E, on the dead leaves of *Carex* sp., leg. & det. D. Savić, 12.07.2021, F.G. 1576. (Fig. 33).

Description: Apothecia superficial, scattered, cup-shaped, 0,2–0.5 *mm* diam., with short stipe (~0.2 *mm*), initially white and later pale yellow; the outer side, stipe and margine covered with white hairs. Asci arising from simple septa, cylindric, 60–68 × 4.7–6 *μm*, 8-spored, biseriate, apical ring euamyloid (blue with IKI). Paraphyses lanceolate, septate in the lower part, 4–5 *μm* wide, protruding asci for 20–23 *μm*, without refractive vacuoles. Ascospores narrow-fusoid, slightly curved, 18–24 × 1,7–1,9 *μm*, aseptate, with small oil drops at the ends, hyaline. Hairs cylindrical, 60–80 × 3,5–4 *μm*, densely-grained, distinctly inflated at tips, septate only in lower part, without refractive vacuoles. This specimen corresponds with the description provided by Raitviir & Blank (1988).

Notes: Except *Schoenoplectus lacustris* and *Scirpus sylvaticus* which are mentioned as a substrate during the description, the species was also found on the dead leaves of *Carex globularis* (Filippova 2012).

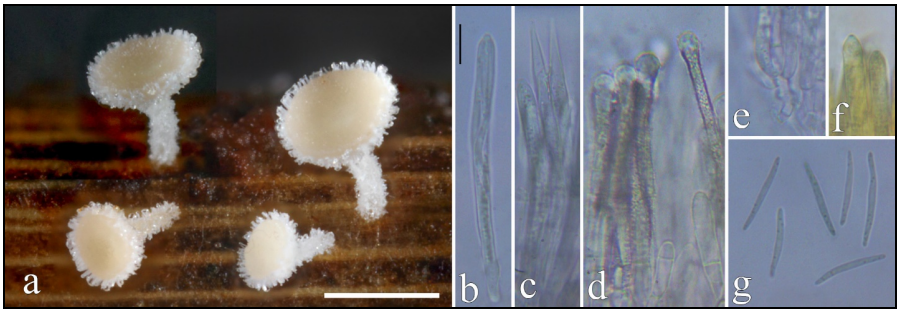

Fig. 33. – *Lachnum schoenoplecti* – a: Apothecia, *in situ*; b: Ascus; c: Paraphyses; d: Hairs; e: Ascus base, crozier-; f: Apical ring blue with IKI; g: Ascospores – Scale bars: 0.2 *mm* for a, 10 *μm* for b–g.

Perrotia distincta (Peck) J.H. Haines

Specimen data: Fruška Gora, Debeli cer, 45.15076 ° N, 19.641300° E, on the culms of *Phragmites australis*, leg. & det. D. Savić, 13.11.2024, F.G. 2045. (Fig. 34).

Description: Apothecia scattered to gregarious, 0.5–1.5 *mm* diam., initially cup-shaped and later almost flat, often deformed due to dense growth, sessile, covered at the margin with ochraceous-buff to yellow hairs; hymenium pink to orange when fresh. Hairs up to 140 *μm* long and 3–5 *μm* in diam., irregularly cylindrical, more or less tapering toward the tips, rarely branched near the base, septate, thick-walled (~2 *μm*), golden brown, sometimes with nearly hyaline tips, smooth or with lumps of yellow to brown resinous matter. Asci probably arising from croziers (couldn't be clearly seen), cylindrical-clavate, 78–88 × 8–10 *μm*, biseriate, 8-spored, ascus apex inamyloid. Paraphyses cylindrical, straight, simple

(some are forked at the base), 2–2.5 *µm* wide, inflated at top (2–3 *µm*), septate, without refractive vacuoles, protruding asci for 5–10 *µm*. Ascospores 18.3–24.4 × 3.2–3.7 *µm*, ellipsoid-fusiform, straight or slightly curved, becaming 1-septate while still in the ascus, hyaline, with few small oil drops. This specimen agrees with the description reported by Haines (1989b).

Notes: This species most commonly grows on last years culms of *Phragmites* but has also been found on other grasses such as *Panicum* and *Andropogon*. It is probably widespread in temperate regions of Europe and North America but is rarely collected because it occurs at the end of the season (Haines 1989b).

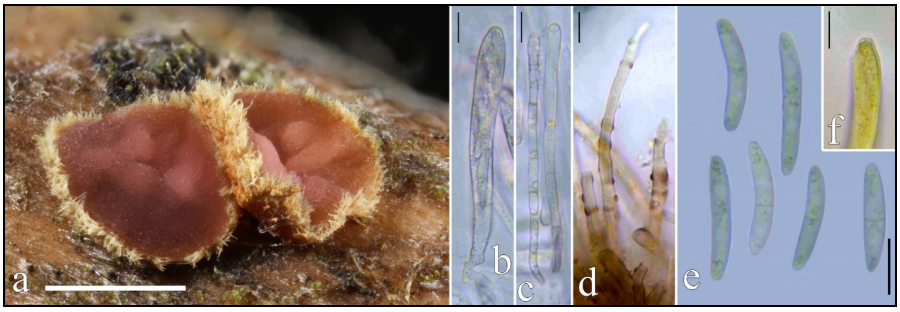

Fig. 34. – *Perrotia distincta* – a: Apothecia, *in situ*; b: Ascus; c: Paraphyses; d: Hairs; e: Ascospores; f: Ascus apex inamyloid – Scale bars: 1 *mm* for a, 10 *µm* for b–e.

Fam.: **Mollisiaceae** Rehm 1891

Mollisia albogrisea Gminder, Ingo Wagner, Florian Prell & Baral

Specimen data: Fruška Gora, Stražilovo, 45.169259° N, 19.915253° E, on the bark of the wood of *Aesculus hippocastanum*, leg. & det. D. Savić, 08.05.2020, F.G. 1363. (Fig. 35).

Description: Apothecia scattered to gregarious, 0.3–0.5 *mm* diam., shallow cup-shaped, sessile on a subiculum of darkly pigmented hyphae, grayish brown to yellowish brown; outer side same color as hymenium, margine slightly lighter. Marginal cells clavate, 20–30 *µm* long (6–8 *µm* wide at the tips), hyaline to grayish. Asci arising from croziers, cylindrical-clavate, 48–55 × 7–8 *µm*, biseriate, 8-spored, apical ring euamyloid (blue with IKI). Paraphyses cylindrical, straight, simple (some are forked at the top), 2–2.5 *µm* wide, slightly inflated at top (~4 *µm*), septate, containing large refractive vacuole, not exceeding the asci. Ascospores ellipsoid-fusiform with obtuse ends, 8–10.7 × 2.4–2.7 *µm*, aseptate, hyline, with few small oil drops. KOH reaction positive (yellow). The features of this specimen are in line with the description by Tanney *et al.* (2016).

Notes: This species has been recorded in Europe and Canada (Tanney *et al.* 2016) and grows on the branches and wood of several different types of deciduous trees (Baral 2024).

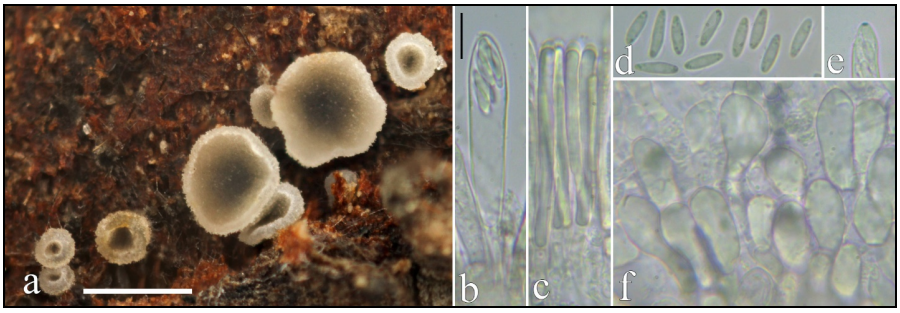

Fig. 35. – *Mollisia albogrisea* – a: Apothecia, *in situ*; b: Ascus; c: Paraphysis; d: Ascospores; e: Apical ring blue with IKI; f: Hairs – Scale bars: 0.5 *mm* for a, 10 *μm* for b–f.

Mollisia elegantior (Graddon) Baral

Specimen data: Fruška Gora, Iriški venac, 45.148296° N, 19.832244° E, on the rotten wood of *Quercus petraea*, leg. & det. D. Savić, 20.02.2024, F.G. 1971. (Fig. 36).

Description: Apothecia cup-shaped, superficial, scattered to gregarious, 1–2.5 *mm* diam., sessile on a brown subiculum, hymenium grayish; outer side much darker than hymenium covered with hairs, margine whitish. Asci arising from croziers, cylindric, 75–100 × 9–9.5 *μm*, 8-spored, biseriate, apical ring euamyloid (blue with IKI). Paraphyses cylindric, straight, 4–5 *μm* wide, simple, septate, containing large refractive vacuoles (VBs), exceeding the asci. Ascospores ellipsoid-fusiform with obtuse ends, 11.3–14.2 × 3.2–3.7 *μm*, aseptate, hyline, with few small oil drops. Hairs whitish, cylindric, 30–50 × 4–5 *μm*, hyline, septate, with obtuse tips. KOH reaction of VBs negative. This specimen corresponds with the description provided by Graddon (1967).

Fig. 36. – *Mollisia elegantior* – a: Apothecia, *in situ*; b: Ascus; c: Paraphyses; d: Hairs; e: Ascospores – Scale bars: 1 *mm* for a, 10 *μm* for b–e.

Notes: This species is host-specific, i.e. so far it has only been found on decaying wood of *Quercus* spp.

Mollisia poaeoides Rehm

Specimen data: Fruška Gora, Rakovac, 45.216940° N, 19.769301° E, on the dead leaves of *Iris pseudacorus*, leg. & det. D. Savić, 16.05.2022, F.G. 1711; Novi Sad, Šodroš, 45.231545° N, 19.823264° E, on the dead leaves of *Iris pseudacorus*, leg. & det. D. Savić, 16.05.2022, F.G. 1712. (Fig. 37).

Description: Apothecia superficial, scattered, initially shallow cup-shaped, becomes almost flat, discoid with a slightly raised, wavy margin. 0.2–0.5 *mm* diam., sessile, hymenium grayish; outer side the same color as hymenium, margine whitish. Asci arising from croziers, cylindric, 58–60 × 7.5–8 *μm*, 8-spored, biseriate, apical ring euamyloid (blue with IKI). Paraphyses cylindric, straight, 2–3 *μm* wide, simple, containing long cylindrical refractive vacuole. Ascospores fusiform with obtuse ends, slightly curved, 10–14.8 × 2.3–2.3 *μm*, aseptate, hyline, with few medium sized oil drops. Hairs whitish, short, consisting of 2–3 cells, apical cell slightly inflated. KOH reaction negative. This specimen agrees with the description reported by Rehm (1891).

Notes: This species has so far only been found on the remains of various grasses, which is why it bears the name "*poaeoides*". My finding on *Iris pseudacorus* shows that it is not strictly associated with grasses.

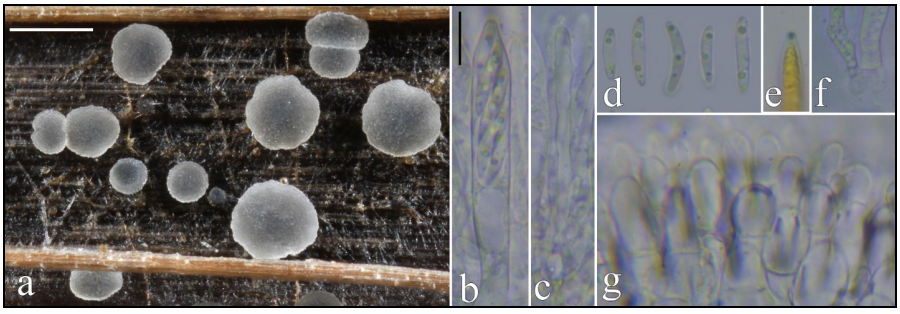

Fig. 37. – *Mollisia poaeoides* – a: Apothecia, *in situ*; b: Ascus; c: Paraphysis; d: Ascospores; e: Apical ring blue with IKI; f: Ascus base, crozier+; g: Hairs – Scale bars: 0.5 *mm* for a, 10 *μm* for b–g.

Mollisia scopiformis (Kowalski & Kehr) I. Wagner, Prell & Baral

Specimen data: Fruška Gora, Kraljeva stolica, 45.152979° N, 19. 823075° E, on stump of *Quercus petraea*, leg. & det. D. Savić, 23.11.2022, F.G. 1817. (Fig. 38).

Description: Apothecia superficial, gregarious, round but mostly irregular due to dense growth, 0.5–1 *mm* diam., sessile on a dark brown

subiculum, hymenium dark gray; outer side and margine brown. Asci arising from croziers, cylindric, 55–60 × 6.5–6.7 *μm*, 8-spored, biseriate, apical ring euamyloid (blue with IKI). Paraphyses cylindric, straight, 2–3 *μm* wide, simple, septate at the base, containing large, long cylindrical refractive vacuole. Ascospores elongated ovoid, wedge-shaped (narrowed at the base), 6.1–8.5 × 2–2.5 *μm*, aseptate, hyline, without or with few small oil drops at the ends. Hairs short, consisting of 2–3 cells, apical cell slightly to visibly inflated. KOH reaction positive, but not strong. This specimen is consistent with the description provided by Wagner & Baral (2021).

Notes: This species is most often found on decorticated branches, trunks and stumps of *Quercus* spp., but also on other deciduous trees, less often on conifers (Wagner & Baral 2021).

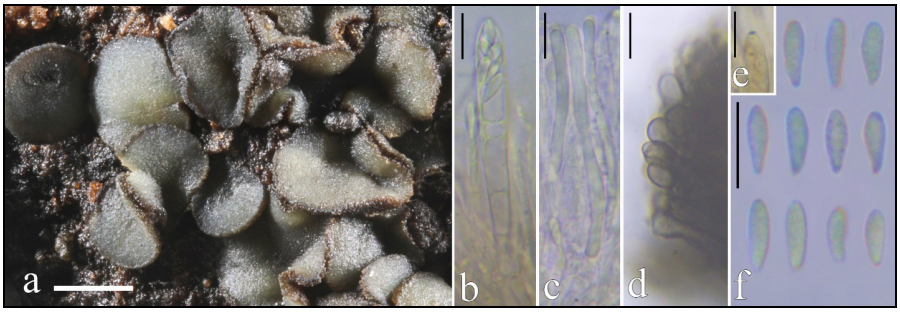

Fig. 38. – *Mollisia scopiformis* – a: Apothecia, *in situ*; b: Ascus; c: Paraphyses; d: Flank hairs; e: Apical ring blue with IKI; f: Ascospores – Scale bars: 0.5 *mm* for a, 10 *μm* for b–f.

Mollisia sublividula (Nyl.) P. Karst.

Specimen data: Fruška Gora, Brankovac, 45.157760° N, 19.756327° E, on the inner side of bark of *Tilia tomentosa*, leg. & det. D. Savić, 22.08.2022, F.G. 1742; Fruška Gora, Viline vodice, 45.176473° N, 19.869115° E, on the log of *Fagus sylvatica*, leg. & det. D. Savić, 29.08.2022, F.G. 1838. (Fig. 39).

Description: Apothecia superficial, scattered to gregarious, shallow cup-shaped, round or irregular due to dense growth, 0.3–1.2 *mm* diam., sessile, hymenium dark gray; outer side the same color as hymenium, margine lighter. Asci arising from croziers, cylindric-clavate, 45–54 × 6–7 *μm*, 8-spored, biseriate, apical ring euamyloid (blue with IKI) or inamyloid (within the same fruit body). Paraphyses cylindric, straight, slightly inflated at the top, ~3 *μm* wide, simple, septate at the base, containing large, long cylindrical refractive vacuole. Ascospores ovoid to elongated ovoid, (5–) 6–8.4 × 2.1–3 (–3.8) *μm*, aseptate, hyline, with few small oil drops at the ends. Hairs short, consisting of 2–3 cells, apical cell slightly inflated. KOH

reaction negative. The characteristics of this sample align with those described by Engel, H. *et al.* (1986).

Notes: This species is most often found on trunks of deciduous trees, but there is also a finding on the stem of *Sambucus ebulus* (Engel, H. *et al.* 1986).

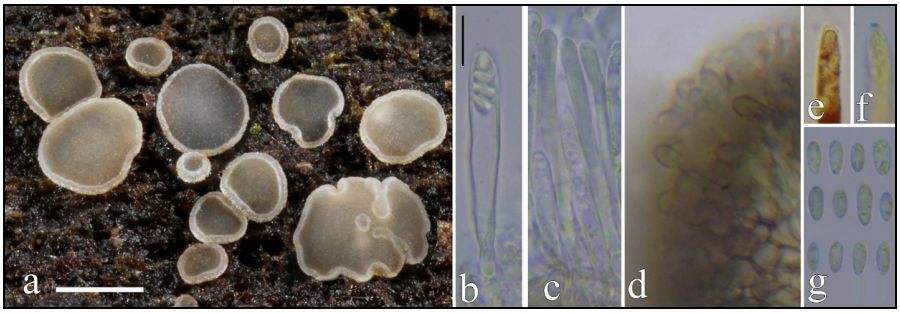

Fig. 39. – *Mollisia sublividula* – a: Apothecia, *in situ*; b: Ascus; c: Paraphyses; d: Flank hairs; e: Ascus apex inamyloid; f: Apical ring blue with IKI; g: Ascospores – Scale bars: 0.5 *mm* for a, 10 *μm* for b–f.

Fam.: **Patellariopsidaceae** Karun., Camporesi & K.D. Hyde 2020

Patellariopsis atrovinosa (A. Bloxam ex Curr.) Dennis

Specimen data: Fruška Gora, Paragovo, 45.180792° N, 19.839499° E, on the branch of *Carpinus betulus* on the ground, leg. & det. D. Savić, 26.01.2024, F.G. 1965. (Fig. 40).

Description: Apothecia solitary, superficial, sessile, 0.5–1 *mm* in diamterar, saucer-shaped, hymenium violet-black; margin obtuse, prominent, purplish. Asci arising from croziers, cylindric-clavate, 75–80 × 12–13.7 *μm*, 8-spored, biseriate, apical ring euamyloid (blue with IKI). Paraphyses filiforme, septate, forked, inflated at top (~4.5 *μm*). Ascospores fusiforme, obtusely acute, slightly curved, hyaline, 19–27 × 3.6 × 4.5 *μm*, mature with 3 septa, filled with medium-sized oil drops. The description of

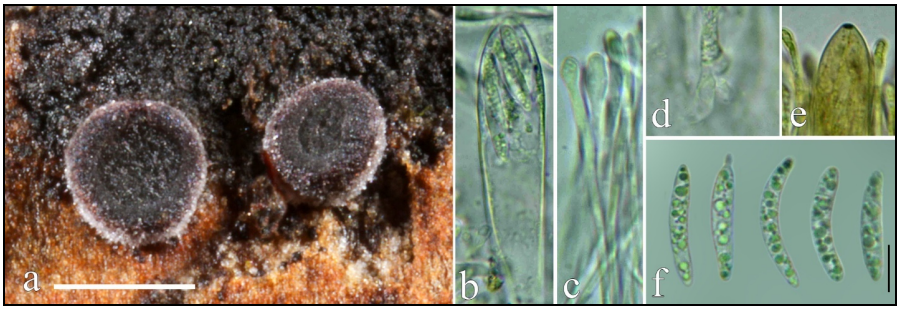

Fig. 40. – *Patellariopsis atrovinosa* – a: Apothecia, *in situ*; b: Ascus; c: Paraphyses; d: Ascus base, crozier+; e: Apical ring blue with IKI; f: Ascospores – Scale bars: 0.5 *mm* for a, 10 *μm* for b–f.

this sample fits well with that given by Dennis (1974).

Notes: This species grows on bark or decorticated branches of *Carpinus*, but also on other species such as *Cornus, Corylus* and *Prunus*. After recent genetic analyzes and association of teleomorph with anamorph, the genus Patellariopsis has been placed in a separate family, Patellariopsidaceae (Karunarathna *et al.* 2020).

Fam.: **Pezizellaceae** Velen. 1934

Allophylaria nervicola (Velen.) Baral

Specimen data: Kukavica, village Slatina, 42.856952° N, 21.998598° E, on the petioles of leaves of *Acer platanoides* and *Rubus* sp., leg. Ž. Jorgovanović, det. D. Savić, 01.11.2022, F.G. 1818. (Fig. 41).

Description: Apothecia shallowly cup-shaped to nearly flat, solitary to gregarious, superficial, 0.2–05 *mm* diam., white, with stalk 0.2–0.3 *mm* long; outer side the same color as the hymenium. Asci arising from croziers, cylindric-clavate, 92–112 × 8.5–10 *µm*, 8-spored, biseriate, apical ring hemiamyloid (red with IKI). Paraphyses slender, septate, gradually slightly broader towards the top, containing hyaline, elongated cylindrical refractive vacuole in the upper part. Ascospores ovoid to ellipsoid, aseptate, obtuse ends or slightly tapered, inequilateral, with lots of small oil drops, especially at the ends.

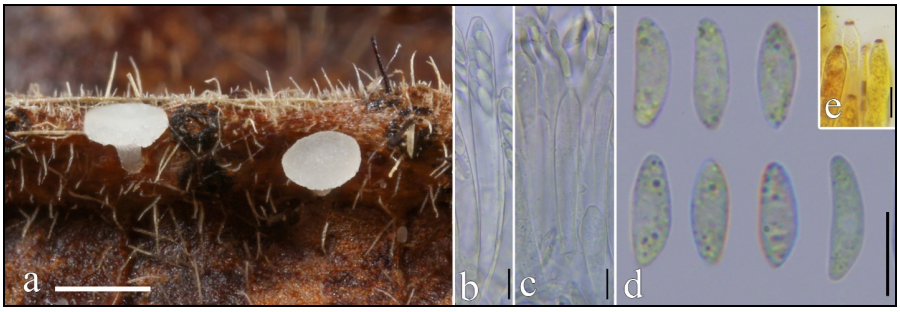

Fig. 41. – *Allophylaria nervicola* – a: Apothecia, *in situ*; b: Ascus; c: Paraphyses; d: Ascospores; e: Apical rings red with IKI – Scale bars: 0.5 *mm* for a, 10 *µm* for b–f.

Notes: This species grows mostly on fallen leaves of *Acer* spp. but also on several other tree species (Baral, pers. comm.). By the way, in the literature, the scarce descriptions of this species can be seen in Svrček (1984) and Baral & Kriegelsteiner (1985). The species was originally described by Velenovský in 1934 as *Helotium nervicola*. After revising the samples from the Velenovský's herbarium, Svrček changed the name to *Conchatium nervicola* (Svrček 1934), and the final place in systematics, that is, *Allophylaria nervicola*, was given in the paper Baral (1992).

Allophylaria subliciformis (P. Karst.) P. Karst.

Specimen data: Fruška Gora, Debeli cer, 45.15076 ° N, 19.641300° E, on the culms of *Phragmites australis*, leg. & det. D. Savić, 06.11.2024, F.G. 2050. (Fig. 42).

Description: Apothecia 0.15–0.25 *mm* in diam., superficial, gregarious, whitish to pale yellow, goblet-shaped, with cylindrical stipe 0.1–0.15 *mm* height, pale yellow- to grey-brown in the upper part and darker brown below. Asci arising from croziers, 100–131 × 13.5–15.9 *µm*, cylindric-clavate, 8-spored, obliquely biseriate, apical ring hemiamyloid (red with IKI). Ascospores cylindric-ellipsoid, ends obtuse to almost subacute 25–26 × 6–7 *µm*, inequilateral to mostly slightly curved, aseptate, scarcely constricted at the septa, with two big oil drops in each half, surrounded by many small ones. Paraphyses filiform, septate, simple, 1.8–2 *µm*, inflated at the tip (~4 *µm*), often somewhat curved, septate, containing one or a few large, hyaline vacuolar bodies. The characteristics of this sample align with those described by Martinez-Gil & Baral (2018).

Notes: This rarely documented species has been most commonly found on the previous year's fallen stems of dicotyledonous plants such as *Oenothera, Melilotus, Solidago* and *Cirsium* (Martinez-Gil & Baral 2018). My finding on *Phragmites* is the first on the remains of monocotyledonous plants.

Fig. 42. – *Allophylaria subliciformis* – a: Apothecia, *in situ*; b: Asci; c: Paraphyses; d: Ascospores; e: Apical ring red with IKI – Scale bars: 0.2 *mm* for a, 10 *µm* for b–f.

Calycellina lachnobrachya (Desm.) Baral

Specimen data: Fruška Gora, Novo Hopovo, 45.128157° N, 19.847994° E, leg. & det. D. Savić, 24.11.2021, F.G. 1679; Kukavica, village Slatina, 42.856952° N, 21.998598° E, on the fallen leaf of *Acer platanoides*, leg. Ž. Jorgovanović, det. D. Savić, 01.11.2022, F.G. 1800. (Fig. 43).

Description: Apothecia shallow cup-shaped to saucer-shaped, superficial, gregarious, 0,1–0,3 *mm* diam., white, arising from a short stipe; outer side same color as hymenium, covered externally, particularly at the

margin, with short whitish hairs. Asci arising from croziers, cylindric-clavate, 28.7–31.5 × 5.6–6 *μm*, 4-spored, apical ring euamyloid (blue with IKI). Paraphyses cylindric-clavate, straight, simple, slightly inflated at top (3–4 *μm*). Ascospores ellipsoidal, 12–14 ×1.6–3.1 *μm*, straight or slightly curved, aseptate (sometimes 1-septate), hyaline, without oil drops (or with a few small ones). Hairs hyaline, smooth, straight or slightly curved, septate, in the basal part inflated (3–4 *μm*) with vacuoles in which there is a yellowish pigment, gradually tapered to the pointed apex, 30–70 *μm* long. The features of this specimen are in line with the description by Raitvir (2004).

Notes: This species is widespread in Europe, North America and Asia and occurs on leaves and petioles of various tree species, but is easily overlooked due to its small size (Hosoya 2005).

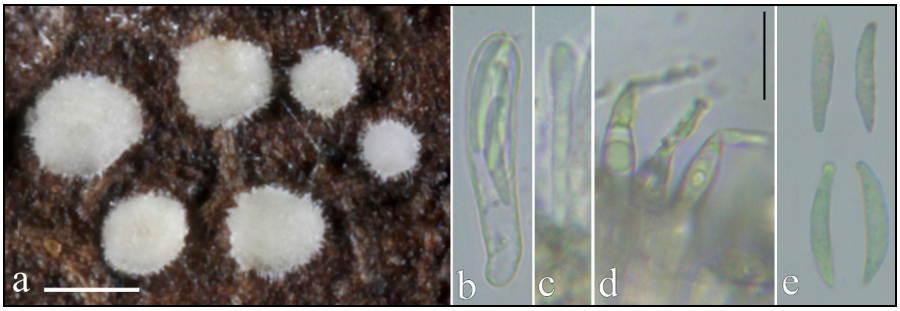

Fig. 43. – *Calycellina lachnobrachya* – a: Apothecia, *in situ*; b: Ascus; c: Paraphysis; d: Hairs; e: Ascospores – Scale bars: 0.2 *mm* for a, 10 *μm* for b–e.

Calycellina ulmariae (Lasch) Korf

Specimen data: Zlatibor, Crni Rzav, 43.670707° N, 19.702164° E, on the dead stem of *Filipendula ulmaria*, leg. & det. D. Savić, 10.06.2021, F.G. 1596. (Fig. 44).

Description: Apothecia shallow cup-shaped, superficial, gregarious, sessile to shortly stipitate, 0.2–0.5 *mm* diam., orange-yellow; outer side same color as hymenium, covered externally, particularly at the margin, with short whitish hairs. Asci arising from croziers, cylindric-clavate, 4-spored, 33–40 × 5.8–6.4 *μm*, apical ring euamyloid (blue with IKI). Paraphyses cylindrical, not exceeding the asci, 3–4 *μm* diam., in upper part with elongated vacuole containing yellow-green pigment. Ascospores fusoid, hyaline, aseptate, with many small oil drops, 12.7–15.3 × 1.9–2.4 *μm*. Hairs hyaline, smooth, straight or slightly curved, in the basal part inflated (2–4 *μm*) with vacuoles in which there is a yellowish pigment, gradually tapered to the pointed apex, 20–30 *μm* long. This specimen corresponds with the description provided by Raitvir (2004).

Notes: This species is widespread in Europe and Asia and occurs mainly on decaying stems of *Filipendula ulmaria* and there is also a finding on *Epilobium anfustifolium* (Raitvir 2004).

Fig. 44. – *Calycellina ulmariae* – a: Apothecia, *in situ*; b: Ascus; c: Paraphysis; d: Ascospores; e: Hairs – Scale bars: 0.2 *mm* for a, 10 *μm* for b–e.

Septopezizella oreadum (Velen.) Svrček

Specimen data: Fruška Gora, Bukovac, 45.176558° N, 19.896467° E, on the cone of *Pinus nigra*, leg. & det. D. Savić, 21.04.2023, F.G. 1881. (Fig. 45).

Description: Apothecia shallow cup-shaped, superficial, gregarious, with short stipe (darker at the base), 0.2–0.5 *mm* diam., cream-ochre; outer side same color as hymenium, minutely pruinose, margine with short whitish hairs. Asci arising from croziers, cylindric-clavate, 65–70 × 7.7–8.2 *μm*, 8-spored, biseriate, apical ring euamyloid (blue with IKI). Paraphyses cylindric, simple, straight, hyaline, ~2 *μm* wide, slightly inflated in the upper part and with elongated vacuole containing yellow-green pigment. Ascospores oblong-ellipsoid, 10–12.8 × 3–3.6 *μm*, mature with 1 septum, hyaline, smooth, with rare small oil drops. Hairs cylindric-clavate, 8–12 *μm* long and 3–3.5 *μm* wide in the inflated part on the tips, smooth. Except that in my sample the asci are bigger in other characters, it mostly matches the

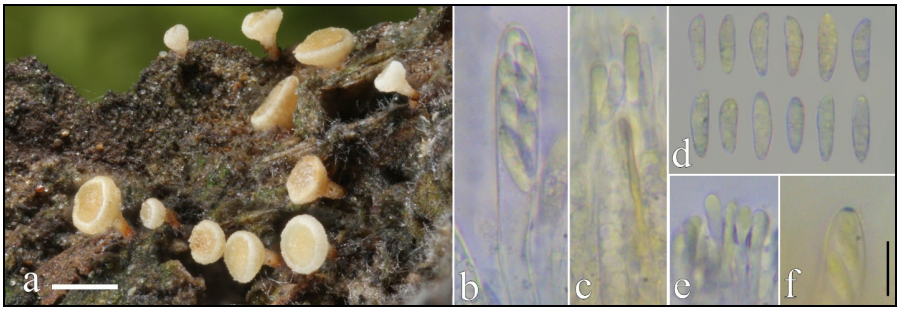

Fig. 45. – *Septopezizella oreadum* – a: Apothecia, *in situ*; b: Ascus; c: Paraphyses; d: Ascospores; e: Hairs; f: Apical ring blue with IKI – Scale bars: 0.5 *mm* for a, 10 *μm* for b–f.

description given by Svrček (1987) as well as a micro analysis that can be seen in Baral (2024).

Notes: This species occurs on fallen cones, i.e. scales of cones of *Pinus nigra*. The genus *Septopezizella*, with only one species *S. oreadum*, was separated by Svrček (1987) from the genus *Belonium* based on the structure of the excipulum and septate oblong ascospores. Baral (pers.comm.), however, believes that this species belongs to the genus *Calycina*.

Ciliolarina pinicola (Henn. & Plöttn.) Huhtinen

Specimen data: Fruška Gora, Iriški venac, 45.149993° N, 19.831233° E, on the branch of *Pinus nigra*, leg. & det. D. Savić, 03.03.2023, F.G. 1865); Fruška Gora, Paragovo, 45.177810° N, 19.837905° E, on the branch of *Cryptomeria japonica,* leg. & det. D. Savić, 14.12.2023. (Fig. 46).

Description: Apothecia cup-shaped, superficial, sessile to subsessile, white, 0.1–0.3 *mm* diam.; margine and the outer side brownish covered with short hairs. Asci arising from simple septa, clavate, 60–66 × 9–11 *µm*, 8-spored, ascus apex inamyloid. Paraphyses cylindrical, apically slightly inflated, 1.5–2 *µm* wide. Ascospores ellipsoid-obovoid, hyaline, at first aseptate, becoming 1-septate, 8–10.8 × 3.5–4.2 *µm*. Hairs cylindric-clavate, brownish, aseptate, 20–30 × 4–5 *µm*, thick-walled, smooth, on top with finely granules. This sample closely matches the description given by Raitviir (2004).

Notes: This species is widespread and grows mostly on conifer twigs such as *Pinus* spp. and *Juniperus* spp. (Raitvir 2004). My first finding (to which the description refers) is on a branch of *Pinus* and the second on *Cryptomeria japonica*, which also belongs to conifers.

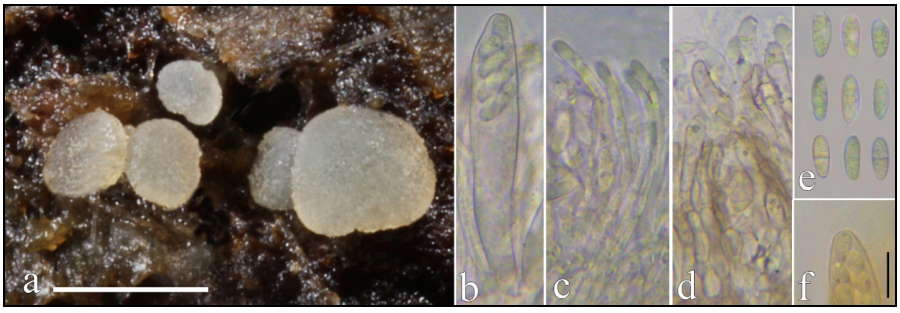

Fig. 46. – *Ciliolarina pinicola* – a: Apothecia, *in situ*; b: Ascus; c: Paraphyses; d: Hairs; e: Ascospores; f: Ascus apex inamyloid – Scale bars: 0.5 *mm* for a, 10 *µm* for b–f.

Mollisina acerina (Mouton) Höhn.

Specimen data: Fruška Gora, Zmajevac, 45.158813° N, 19.783760° E, on the fallen leaf of *Quercus petraea*, leg. & det. D. Savić, 12.10.2021, F.G. 1641. (Fig. 47).

Description: Apothecia superficial, gregarious, saucer-shaped, 0.2–0.3 *mm* diam., with short stipe, light greyish with white margin. Asci arising from simple septa, cylindric-clavate to clavate, 37–43 × 6.2–6.5 *µm*, 8-spored, biseriate, apical ring hemiamylooid (dirty red with IKI). Paraphyses filiform, ~2 *µm* wide, not exceeding the asci, slightly inflated at top, contain refractive vacuoles. Ascospores ellipsoid, hyaline, aseptate, without oil drops or with small one on both ends, 5.6–7.1 × 2.5–3 *µm*. Hairs cylindrical, hyaline, 10–20 × 2–3 *µm*, bearing numerous finger-shaped branches at their upper part. This specimen corresponds with the description provided by Raitviir (2004).

Notes: This species grows on the fallen leaves of many different species of deciduous trees (Raitviir 2004). Species is probably widespread, but due to its small size it can easily be overlooked in the field.

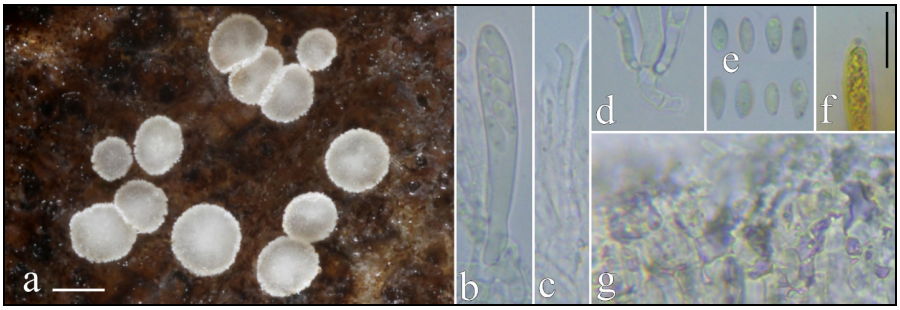

Fig. 47. – *Mollisina acerina* – a: Apothecia, *in situ*; b: Ascus; c: Paraphysis; d: Ascus base, crozier-; e: Ascospores; f: Apical ring red with IKI; g: Hairs – Scale bars: 0.2 *mm* for a, 10 *µm* for b–g.

Mollisina flava Arendh.

Specimen data: Fruška Gora, Sremska Kamenica, 45.220224° N, 19.822052° E, leg. & det. D. Savić, 09.12.2022, on the fallen leaves of *Populus alba*, F.G. 1836; Novi Sad, Kamenička ada, 45.226785° N, 19.811483° E, on the fallen leaves of *Populus alba*, leg. & det. D. Savić, 08.12.2022, F.G. 1837. (Fig. 48).

Description: Apothecia superficial, scattered to gregarious, saucer-shaped, 0.2–0.3 *mm* diam., with short stipe, bright lemon yellow. Asci arising from simple septa, cylindric-clavate, 30–36 × 4.5–5 *µm*, 8-spored, apical ring hemiamyloid (red with IKI). Paraphyses cylindric, not exceeding the asci, apically obtuse, 2–3 *µm* wide, in upper part with elongated vacuole containing yellow pigment. Ascospores ellipsoid, slightly inequilateral, hyaline, aseptate, 5.1–6.7 × 1.8–2.2 *µm*, without oil drops. Hairs cylindrical, hyaline, 15–20 × 2–4 *µm*, bearing numerous finger-shaped branches at their upper part. This specimen is consistent with the description provided by Raitviir (2004).

Notes: This species grows on the fallen leaves of *Populus* spp. and *Salix* spp. in Europe and North America (Raitviir 2004). Just like the previous species, it can easily be overlooked in the field due to its small size, but due to its intense yellow color and limited host range, it is still easier to find.

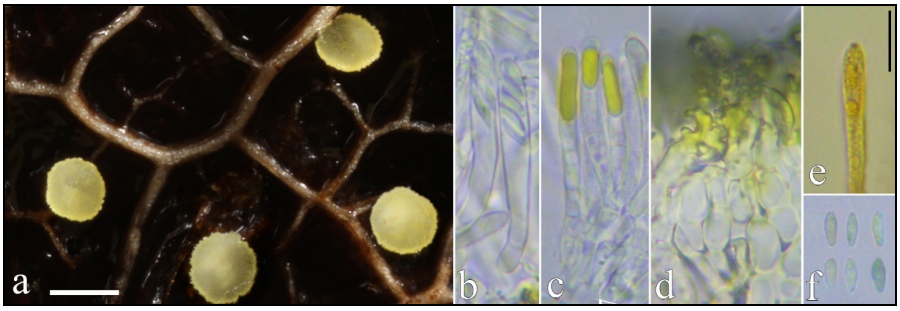

Fig. 48. – *Mollisina flava* – a: Apothecia, *in situ*; b: Asci; c: Paraphyses; d: Hairs; e: Apical ring red with IKI; f: Ascospores – Scale bars: 0.2 *mm* for a, 10 *μm* for b–f.

Rodwayella haematoidea (Cooke & W. Phillips) Baral & Quijada

Specimen data: Gostinica, Mijatovići, 43.919411° N, 19.801104° E, rotten decorticated wood of *Picea abies*, leg. D. Stojanović, det. D. Savić, 21.12.2023, F.G. 1962. (Fig. 49).

Description: Apothecia superficial, initially shallowly cup-shaped and then almost flat, conical in the lower part, scattered to gregarious, subsessile, smooth, initially whitish and then orange-ochre, 0.2–0.5 *mm*. in diam., margin obtuse. Asci arising from croziers, cylindric-clavate, 80–95 × 9.8–10.5 *μm*, 8-spored, apical ring euamyloid (blue with IKI), biseriate. Paraphyses filiform, ~2 *μm* wide, with obtuse slightly inflated tips (–3 *μm*). Ascospores fusiform, mature with 1–3 septa, 14.7–26 × 3.5–4.2 *μm*, contains many small oil drops. This specimen agrees with the description reported by Dennis (2061).

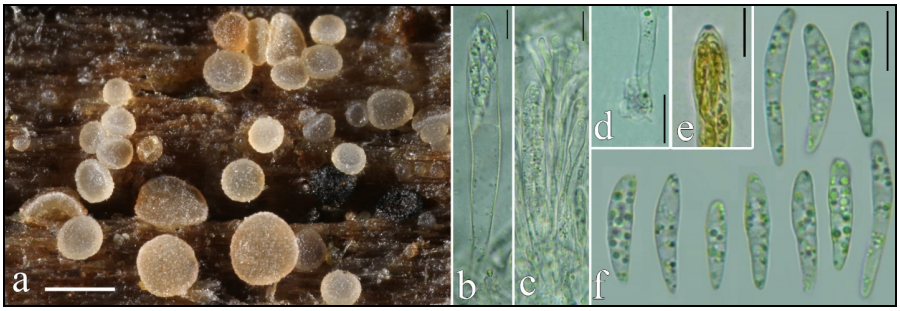

Fig. 49. – *Rodwayella haematoidea* – a: Apothecia, *in situ*; b: Ascus; c: Paraphyses; d: Ascus base, crozier+; e: Apical ring blue with IKI; f: Ascospores – Scale bars: 0.5 *mm* for a, 10 *μm* for b–f.

Notes: The habitat of this species is most often decorticated wood of *Picea* sp., but it also occurs on *Rubus* sp. By analysing its rDNA sequence, this species has recently changed its generic position and is placed in the family Pezizellaceae (Baral et al. 2020).

Fam.: **Ploettnerulaceae** Kirschst. 1924

Pyrenopeziza depressuloides (Gremmen) Gremmen

Specimen data: Fruška Gora, Iriški venac, 45.150770° N, 19.835787° E, on the leaves of *Potentilla argentea*, leg. & det. D. Savić, 25.04.2023, F.G. 1882. (Fig. 50).

Description: Apothecia initially cup-shaped, then somewhat flattened, 0.2–0.5 *mm* diam., hymenium dark brown; outer side the same color as the hymenium, margin pronounced, whittish. Ectal Excipulum distinctly dark brown. Asci arising from croziers, clavate, ~35 × 7 *µm* (only one slightly turgid ascus measured), 8-spored, apical ring euamyloid (blue with IKI). Paraphyses filiform, simple, ~ 3 *µm* wide. Ascospores 10.3–13.4 × 2.2–2.5 *µm*, hyaline to light olive, 1-celled, with many tiny greenish oil drops at both ends. Marginal hairs olive-brown, dense, agglutinated, 15–30 × 4–5 *µm*, slightly inflated at the tip. In most characteristics, the sample corresponds with the description provided by Gremmen (1955).

Notes: This is a rarely encountered species for which, besides the description provided by Gremmen (1955), no additional analyses of other samples can be found in the literature that fully or largely match the original description. Two more recent finds can be seen in Baral's GoogleDrive (Baral 2024), possibly of the same species, from Spain on *Arctium minus* and from Germany on *Cirsium* sp. In both cases, as well as in my sample, the ascospores are at most 2.5 *µm* wide. Gremmen (1955) states the spore width as 3 *µm*, without a range, which may indicate that the measurement was not entirely precise, so this characteristic cannot be considered exclusive.

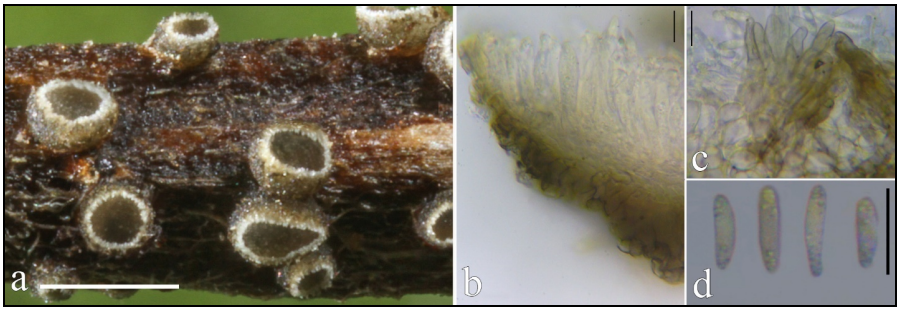

Fig. 50. – *Pyrenopeziza depressuloides* – a: Apothecia, *in situ*; b: Cross–section; c: Hairs; d: Ascospores – Scale bars: 0.5 *mm* for a, 10 *µm* for b–d.

Pyrenopeziza lanceolata (Gremmen) Gremmen

Specimen data: Zlatibor, Crni Rzav, 43.670707° N, 19.702164° E, on the daed stem of *Filipendula ulmaria*, leg. & det. D. Savić, 07.06.2021, F.G. 1609); Vlasina, Dejanova reka, 42.667822° N, 22.381589° E, on the daed stem of *Filipendula ulmaria,* leg. & det. D. Savić, 14.07.2021, F.G. 1588. (Fig. 51).

Description: Apothecia superficial, scattered, cup-shaped, 0.2–0.5 *mm* diam., sessile, hymenium brown; outer side the same color as the hymenium, margin whittish. Ectal Excipulum distinctly dark brown. Asci arising from croziers, cylindric-clavate, 40–42 × 5.5–6 *µm*, 8 spored, biseriate, apical ring euamyloid (blue with IKI). Paraphyses lanceolate, hyaline, 50–65 × 4–6 *µm*, exceeding the asci by 10–15 *µm*. Ascospores ellipsoid-clavate, hyaline, 6.3–6.7 × 1.8 *µm*, with few small oil drops at the ends. Marginal hairs hyaline, 30–40 *µm*, consisting of 2–3 cells, apical cells elongated and tapering towards the tip; flank hairs shorter, brown. The description of this sample fits well with that given by Hawksworth & Sivansen (1975).

Notes: This species has been described and most often grows on the dead stems of *Filipendula ulmaria*, and there is also a finding on *Rubus fruticosus* (Hawksworth & Sivansen 1975).

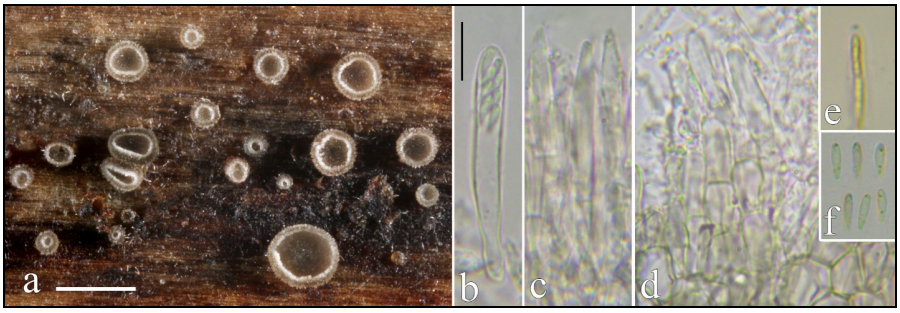

Fig. 51. – *Pyrenopeziza lanceolata* – a: Apothecia, *in situ*; b: Ascus; c: Paraphyses; d: Hairs; e: Apical ring blue with IKI; f: Ascospores – Scale bars: 0.5 *mm* for a, 10 *µm* for b–f.

Pyrenopeziza millegrana Boud.

Specimen data: Fruška Gora, Erdelj, 45.191132° N, 19.711057° E, on the daed stem of *Inula ensifolia,* leg. & det. D. Savić, 26.04.2023, F.G. 1887. (Fig. 52).

Description: Apothecia superficial, scattered, cup-shaped or urceolate when young and later becomes flattened, 0.2–0.5 *mm* diam., sessile, hymenium dark gray; outer side the same color as the hymenium, margin whittish. Ectal Excipulum dark brown. Asci arising from croziers, cylindric-clavate, 60 × 7.5–9.3 *µm*, 8 spored, biseriate, apical ring euamyloid

(blue with IKI). Paraphyses cylindrical, simple, hyaline, ~2 *μm* wide, septate in lower part. Ascospores fusoid, straight (some slightly curved), hyaline, 13–17.2 × 2.7–3.1 *μm*, aseptate, with 4–6 medium size oil drops and few small ones. Marginal hairs aglutinated, hyaline in upper part (some are brown throughout), 13–34 *μm*, consisting of 2–3 cells, apical cells elongated and tapering towards the tip; flank hairs shorter, brown. This specimen corresponds with the description provided by Boudier (1905–1910).

Notes: This species is most commonly found growing on the dead stems of *Filipendula ulmaria*. However, I found it on *Inula ensifolia*, marking a new substrate for this species.

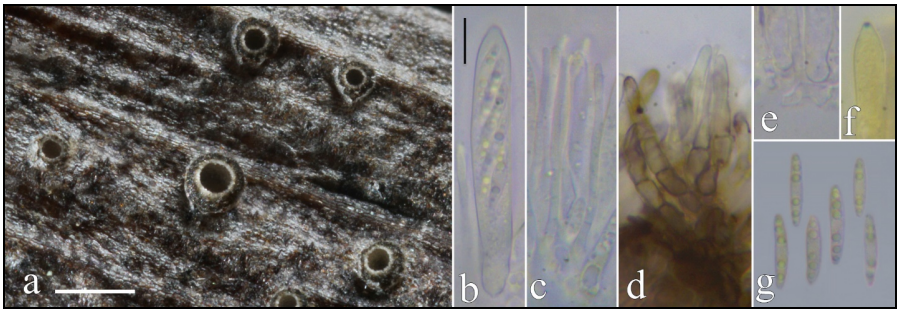

Fig. 52. – *Pyrenopeziza millegrana* – a: Apothecia, *in situ*; b: Ascus; c: Paraphyses; d: Hairs; e: Ascus base, crozier+; f: Apical ring blue with IKI; g: Ascospores – Scale bars: 0.5 *mm* for a, 10 *μm* for b–g.

Pyrenopeziza pulveracea (Fuckel) Gremmen

Specimen data: Zlatibor, Crni Rzav, 43.670707° N, 19.702164° E, on the daed stem of *Filipendula ulmaria*, leg. & det. D. Savić, 07.06.2021, F.G. 1598 (Fig. 53); Fruška Gora, Novo Hopovo, 45.131526° N, 19. 847930° E, leg. & det. D. Savić, on the daed stem of *Chelidonium maius*, 12.05.2022, F.G. 1714.

Description: Apothecia superficial, scattered, cup-shaped, 0.2–0.5 *mm* diam., sessile, hymenium greyish; outer side dark brown, margin whittish. Ectal Excipulum distinctly dark brown. Asci arising from croziers, cylindric-clavate, 40–53 × 5.5–6.6 *μm*, 8 spored, biseriate, apical ring euamyloid (blue with IKI). Paraphyses cylindrical, aseptate, hyaline, 2 *μm* wide, inflated at top (–3 *μm*). Ascospores fusoid-clavate, hyaline, 7.1–10.8 × 1.7–2,1 *μm*, aseptate, with few small oil drops at the ends. Marginal hairs hyaline to light brown, 10–25 × 3.5–45 *μm*, consisting of 2–3 cells, some of them agglutinated; flank hairs shorter, brown. The features of this specimen are in line with the description by Čap (2016) or Hutter (1958).

Notes: This species has most often grows on the dead stems of *Filipendula ulmaria* and in addition to *F. ulmaria*, I also found it on

Chelidonium maius which represents a new substrate for this species. I assume that this species, like the previously mentioned *P. milegrana*, in the absence of the usual substrate (*Filipendula ulmaria* does not grow on the Fruška Gora mountain) has found an alternative substrate on which it can develop.

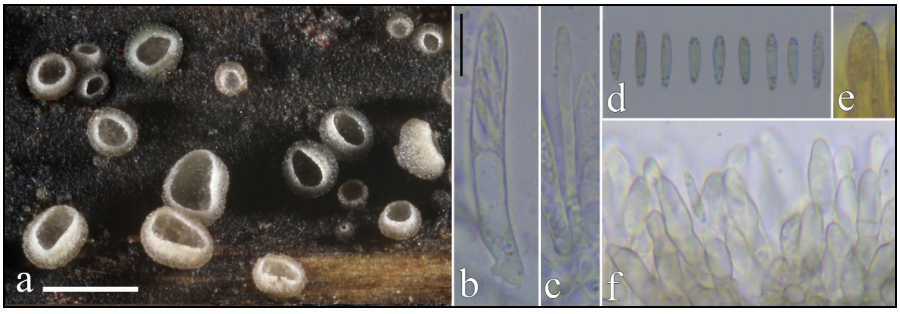

Fig. 53. – *Pyrenopeziza pulveracea* – a: Apothecia, *in situ*; b: Ascus; c: Paraphysis; d: Ascospores; e: Apical ring, blue with IKI; f: Hairs – Scale bars: 0.5 *mm* for a, 10 *µm* for b–f.

Pyrenopeziza solidaginis (P. Karst.) J. Schröt.

Specimen data: Fruška Gora, Vorovo, 45.138234° N, 19.367669° E, on the daed stem of *Solidago gigantea,* leg. & det. D. Savić, 27.09.2021, F.G. 1627. (Fig. 54).

Description: Apothecia erumpent (they develop under the epidermis, which they break through as they grow), scattered, shallow cup-shaped in the beginning and then flat, 0.3–0.5 *mm* diam., sessile, hymenium greyish; outer side and margine darker. Ectal Excipulum distinctly dark brown. Asci arising from croziers, cylindric-clavate, 54–64 × 6.4–6.8 *µm*, 8 spored, biseriate, apical ring euamyloid (blue with IKI). Paraphyses cylindrical, slightly inflated at top, septate, hyaline, ~2 *µm* wide. Ascospores fusoid,

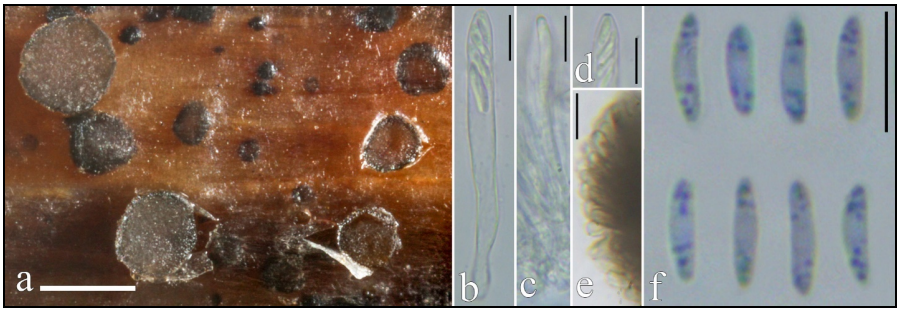

Fig. 54. – *Pyrenopeziza solidaginis* – a: Apothecia, *in situ*; b: Ascus; c: Paraphysis; d: Apical ring, blue with IKI; e: Hairs; f: Ascospores – Scale bars: 0.5 *mm* for a, 10 *µm* for b–f.

slightly curved, hyaline, 7.3–11.3 × 2–2,3 *µm*, aseptate (matured with 1 septa), with few small oil drops at the ends. Marginal and flank hairs short (~10–15 *µm*), hyaline to light brown, consisting of 2–3 cells, apical cell slightly inflated. This specimen is consistent with the description provided by Hutter (1958).

Notes: This species is host specific and grows only on dead stems of plants of the genus *Solidago*.

Fam.: **Rutstroemiaceae** Holst-Jensen, L.M. Kohn & T. Schumach. 1997

Rutstroemia calopus (Fr.) Rehm

Specimen data: Fruška Gora, Kišelez, 45.160984° N, 19.499478° E, on dead stem od grass (Poaceae), leg. & det. D. Savić, 10.11.2022, F.G. 1823.; Fruška Gora, Debeli cer, 45.151536° N, 19.642517° E, grass remnants mixed with soil, leg. & det. D. Savić, 06.12.2024, F.G. 2073. (Fig. 55).

Description: Apothecia superficial, scattered to gregarious, 2–3 *mm* diam., broadly cup-shaped with stipe 2–3 *mm* long, hymenium light ocher to brownish; outer side same color as hymenium or brighter, margin somewhat darker. Asci arising from croziers, cylindric, 113–125 × 12.7–13.6 *µm*, 8-spored, irregularly uniseriate to biseriate, apical ring euamyloid (blue with IKI). Paraphyses cylindrical, straight, simple, ~3 *µm* wide, slightly inflated at top (–4 *µm*), septate, with brownish contents. Ascospores ellipsoid, 14,2–18,7 × 5,7–7 *µm*, hyaline, smooth, with rounded or slightly pointed ends, with many small oil drops especially at the ends. The description of this sample fits well with that given by Pancorbo *et al.* (2013).

Notes: This species is not rare and develops on last year's remains of stems and leaves of different types of grass lying on wet ground (Engel & Hanff 1990/91).

Fig. 55. – *Rutstroemia calopus* – a: Apothecia, *in situ*; b: Asci; c: Paraphyses; d: Ascospores; e: Apical ring, blue with IKI – Scale bars: 0.5 *mm* for a, 10 *µm* for b–e.

Fam.: **Sclerotinaceae** Whetzel 1945

Ciboria americana E.J. Durand

Specimen data: Fruška Gora, Grgeteg, 45.137629° N, 19.902671° E, on the cupula of *Quercus petraea* on the ground, leg. D. Savić, det. H.-O. Baral, 20.09.2018, F.G. 1567. (Fig. 56).

Description: Apothecia solitary, 1 *mm* diam., cup-shaped with dark brown stipe ~1 *mm* long, hymenium brownish; outer side and margin dark brown, rough; margin bent inwards. Asci arising from croziers, cylindric-clavate, ~65 × 7 *µm*, 8-spored, uniseriate, apical ring euamyloid (blue with IKI). Paraphyses cylindrical, simple, 2–3 *µm* wide, slightly inflated at top or in the central part, septate, containing large, long cylindrical refractive vacuole. Ascospores ellipsoid to ovoid, 7,5–10,8 × 4,1–4.2 *µm*, hyaline, smooth, aseptate, with obtuse ends, without oil drops. The characteristics of this sample align with those described by Engel & Hanff, B. (1990/1991).

Notes: This species usually grows on last year's fallen and buried chestnut fruits (*Castanea sativa*), and there is also a finding on the fruit of *Punica granatum* (Baral 2024), while my finding is on the cupula of *Quercus petraea*.

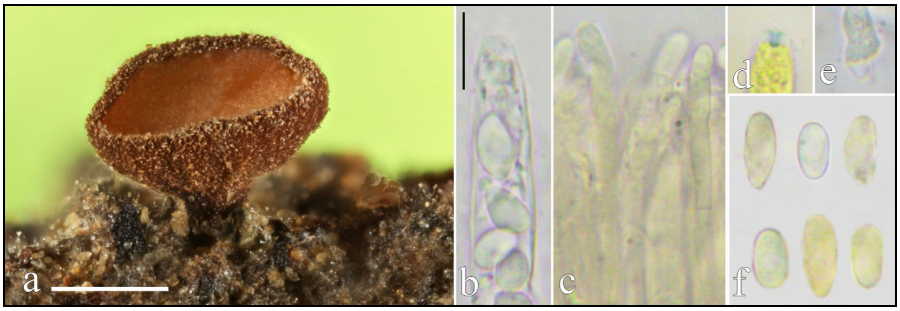

Fig. 56. – *Ciboria americana* – a: Apothecia, *in situ*; b: Ascus; c: Paraphyses; d: Apical ring, blue with IKI; e: Ascus base, crozier+; f: Ascospores – Scale bars: 0.5 *mm* for a, 10 *µm* for b–f.

Fam.: **Solenopeziaceae** Ekanayaka & K.D. Hyde 2019

Trichopezizella rubroguttata (Svrček) Moyne

Specimen data: Fruška Gora, Popovica, 45.196385° N, 19.815561° E, on the dead stem of *Thalictrum aquilegifolium,* leg. & det. D. Savić, 04.05.2022, F.G. 1708. (Fig. 57).

Description: Apothecia scattered, sessile, 0.2–0.5 *mm* diam., broadly cup-shaped, hymenium whitish to light ocher, outer side and margine brownish, covered with dense dark reddish-brown hairs ending in a drop of ruby-red color. Asci arising from simple septa, cylindric, 50–60 × 5–6 *µm*, 8-spored, apical ring euamyloid (blue with IKI). Paraphyses lanceolate,

hyaline, smooth, at the base with a septum, protruding asci up to 18 *µm*. Ascospores narrowly fusiform, elongated, straight to slightly curved, 8.2–11.1 × 1.3–16 *µm*, with small oil drops on the ends. Hairs 90–160 × 5–6 *µm*, multiseptate, thick walled, mostly brown and lighter at the top, without crystals, slightly inflated at the top. The features of this specimen are in line with the description by Svrček (1976).

Notes: In the species description (Svrček 1967), it was not mentioned whether the asci have croziers or not, and even from the accompanying drawing in the paper, this cannot be inferred as the base of the asci is not shown. In the taxonomic revision of the species, Moyne (2014) provides a description stating that the asci arise from croziers (this is also depicted in the drawing). In my specimen, the asci clearly arise from simple septa, and the same is true for the analyzed specimen visible in Baral (2024), so it can be concluded that depending on the collection, the asci may arise from croziers or from simple septa.

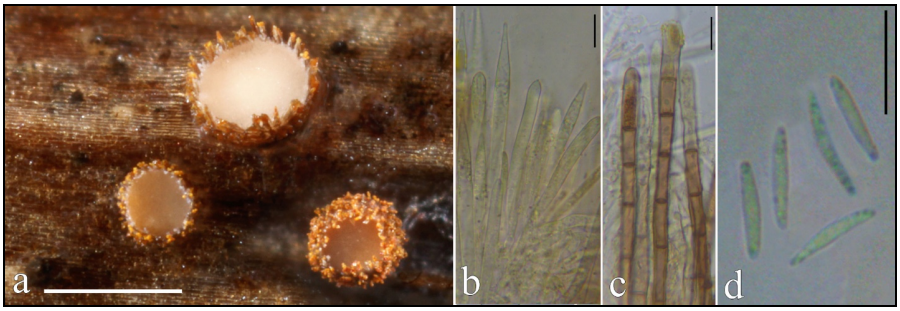

Fig. 57. – *Trichopezizella rubroguttata* – a: Apothecia, *in situ*; b: Asci and Paraphyses; c: Hairs; d: Ascospores – Scale bars: 0.5 *mm* for a, 10 *µm* for b–d.

Fam.: **Tricladiaceae** P.R. Johnst. & Baschien 2020

Graddonia coracina (Bres.) Dennis

Specimen data: Vlasina, Polom, 42.759578° N, 22.324146° E, on the wood under water, leg. D. Stojanović, det. D. Savić, 11.10.2023, F.G. 1929. (Fig. 58).

Description: Apothecia rounded, 0.5–2 *mm* in diameter, gregarious, sessile, smooth, pulvinate, with a wavy margin, reddish-brown, blackening with age; the outer surface is dark brown, smooth, with a velvety appearance. Asci arising from croziers, cylindric-clavate, 155–185 × 14 *µm*, 8-spored, uniseriate, ascus apex inamyloid. Paraphyses slender, slightly inflated at the tip (~3 *µm*), with refractive vacuoles. Ascospores ovoid, 17–20.2 × 11–12.9 *µm*, hyaline, non-septate, filled with small oil drops (LBs). Except for the fact that the ascospores in my sample are slightly wider, in all other characteristics, it completely matches the description given by Gminder (1993).

Notes: This species, with a very striking appearance, grows on dead wood of various deciduous trees, usually in very damp places. Until recently, its taxonomic position was unclear, but it is now placed in the separate family Tricladiaceae (Johnston *et al.* 2020).

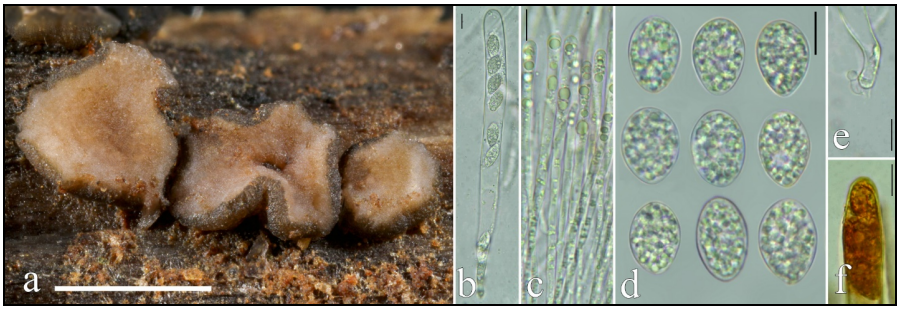

Fig. 58. – *Graddonia coracina* – a: Apothecia, *in situ*; b: Ascus; c: Paraphyses; d: Ascospores; e: Ascus base, crozier+; f: Ascus apex inamyloid – Scale bars: 1 *mm* for a, 10 *μm* for b–f.

Fam.: **Incertae sedis**

Belonioscyphella hypnorum (Syd. & P. Syd.) Höhn.

Specimen data: Fruška Gora, Dumbovački vodopad, 45.166408° N, 19.750286° E, on *Anomodon viticulosus,* leg. & det. D. Savić, 17.01.2023, F.G. 1852.; Fruška Gora, Iriški venac, 45.151073° N, 19.822707° E, on *Anomodon viticulosus,* leg. & det. D. Savić, 21.02.2023. (Fig. 59).

Description: Apothecia rounded with a short stalk, yellowish-ochre, 0.3–0.5 cm in diam., flat to slightly convex. Asci arising from croziers, cylindrical-clavate, 190–210 × 19–21 *μm*, apical ring hemiamyloid (red in IKI and blue in IKI with KOH pretreatment), 8-spored, ascospores biseriate. Paraphyses straight, on the apex inflated to subcapitate, 4–6 *μm* broad, terminal cell 20–60 *μm* long. Ascospores 31,7–58,5 × 6,9–9,1 *μm* fusoid-clavate at first, later more or less allantoid, asymmetrical, mature 3-

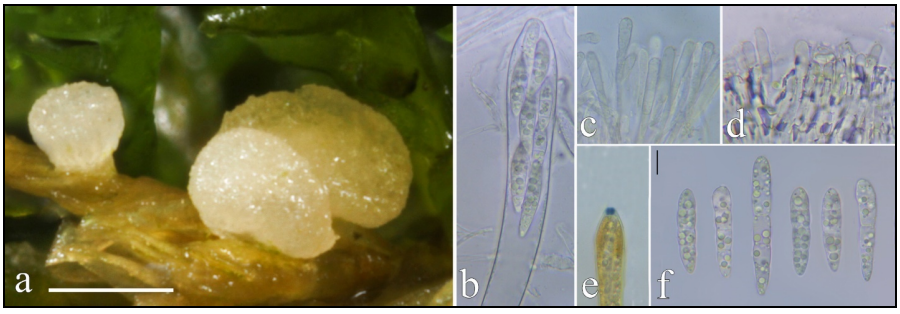

Fig. 59. – *Belonioscyphella hypnorum* – a: Apothecia, *in situ*; b: Ascus; c: Paraphyses; d: Hairs; e: Apical ring blue in IKI with KOH pretreatment; f: Ascospores – Scale bars: 0.5 *mm* for a, 10 *μm* for b–f.

septate, overmature 5-septate, filled with many small oil droplets. This specimen (the first of the two mentioned specimens was analyzed) is consistent with the description provided by Egertova et al. (2016).

Notes: The species is a necrotrophic bryoparasite, which causes yellowish discoloration of its host. Several different bryophytes have been recognized as hosts. So far, it has been found in several European countries, and outside Europe only in Canada. A summary of all published and unpublished findings can be seen in Egertova *et. al.* (2016).

Cryptocline taxicola (Allesch.) Petr.

Specimen data: Fruška Gora, Zmajevac, 45.159456° N, 19.780665° E, on the fallen leaves of *Taxus baccata,* leg. & det. D. Savić, 12.04.2023, F.G. 1910. (Fig. 60).

Notes: The species was very abundant on fallen needles of European yew (*Taxus baccata*) on the ground. At the time of sampling, all conidiomata were quite dry and old, which made it difficult to find conidia. The species was identified based on macroscopic characteristics and the type of host. A detailed description of the species can be found in Bukvayova (2007). The genus *Cryptocline* is placed within the order Helotiales, but there is no scientific confirmation for this. On the contrary, in GenBank, there is a sequence from *Cryptocline arctostaphyli* Petrini that suggests it belongs to the class Dothideomycetes rather than Leotiomycetes (Baral, pers. comm.).

Fig. 60. – *Cryptocline taxicola* – Dry acervuli covered with leaf epidermis, *in situ*.

Patinellaria sanguinea (Pers.) P. Karst.

Literature & specimen data: Beograd, Topčider, sub *Patellea sanguinea*, on *Quercus cerris* and *Fagus sylvatica*, Ranojević 1910: 353; Avala, sub *Patellea sanguinea*, on *Quercus cerris* and *Fagus sylvatica*, Ranojević

1910: 353; Kragujevac, Košutnjak, sub *Patellea sanguinea*, on *Quercus cerris* and *Fagus sylvatica*, Ranojević 1910: 353; Fruška Gora, Iriški venac, 45.150537° N, 19.824535° E, on the stump of *Quercus* sp., leg & det. D. Savić, 20.02.2023, F.G. 1867. (Fig. 61).

Description: Apothecia densely gregarious, discoid, 0.2–0.5 *mm* diam., reddish-brown to black, smooth with an obtuse margin, at the base with numerous anchoring hyphae, lying on a well-developed subiculum, which consists of thick-walled, septate hyphae, 2–3 *μm* wide, heavily encrusted with red granules. Asci arising from croziers, clavate, 45–56 × 6–7 *μm*, 8-spored, apical ring euamyloid (blue with IKI). Paraphyses slender, 1.5 *μm* wide, septate, inflated at the apex (~4 *μm*), apical cell brown, with abundant exudate in the upper part. Ascospores hyaline, ellipsoid-clavate, 6.3–10.2 × 2.5–3.1 *μm*, 1-celled. The characteristics of this sample align with those described by Dennis (1981).

Notes: The given description refers to a sample collected on Fruška Gora. Other data from the literature are mentioned solely because their presentation was mistakenly omitted from the checklist of Leotiomycetous fungi from Serbia (Savić & Karaman 2016). *Patinellaria sanguinea* is a relatively common species that grows on decorticated wood of various angiosperms (*Fagus, Corylus, Populus, Quercus, Salix*), and is easily noticeable and identifiable primarily due to its distinctly prominent red subiculum.

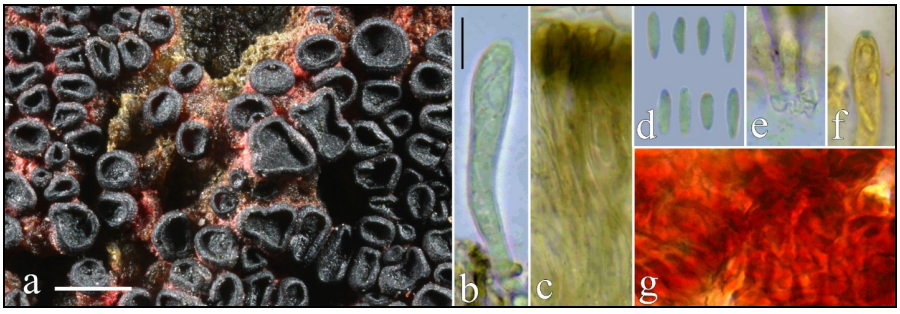

Fig. 61. – *Patinellaria sanguinea* – a: Apothecia, *in situ*; b: Ascus; c: Paraphyses; d: Ascospores; e: Ascus base, crozier+; f: Apical ring blue with IKI; g: Ectal excipulum – Scale bars: 0.5 *mm* for a, 10 *μm* for b–g.

Ordo: PHACIDIALES Bessey 1907

Fam.: **Tympanidaceae** Baral & Quijada 2015

Durandiella gallica M. Morelet

Specimen data: Golija, Rudno, 43.439424° N, 20.462716 ° E, on the branch of *Abies alba* still atached on the tree, leg. & det. D. Savić, 01.10.2024, F.G. 2036. (Fig. 62).

Description: Apothecia turbinate to irregularly cup-shaped, 0.5–1 *mm* diam., emerging from the bark in clusters of 5–20 individuals, black, smooth, flesh gelatinous. Asci club-shaped, 130–140 × 16–17 *µm*, 8-spored, ascus apex inamyloid. Paraphyses filiform, forked, septate, 1.5–2 *µm* wide, slightly inflated at the apex. Ascospores fusiform, curved, smooth, hyaline, with 3–4 septa, 52.4–80.3 × 4.1–5.8 *µm*. The sample conforms to the description provided by Krieglsteiner (1978).

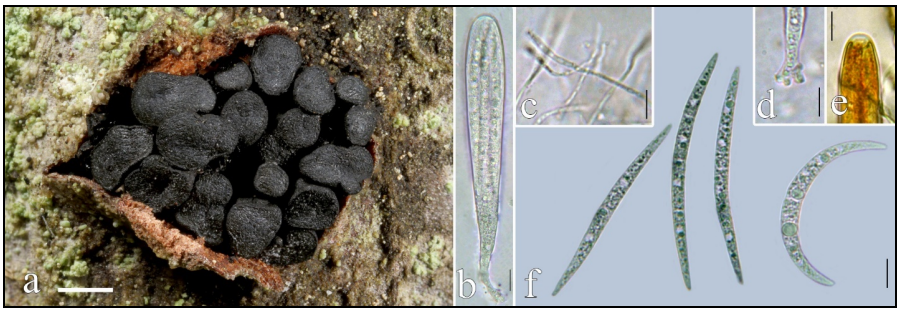

Fig. 62. – *Durandiella gallica* – a: Apothecia, *in situ*; b: Ascus; c: Paraphyses; d: Ascus base; e: Ascus apex inamyloid; f: Ascospores IKI – Scale bars: 1 *mm* for a, 10 *µm* for b–f.

Notes: This species is Widespread and grows on attached or detached dead branches of Abies alba still with bark. The conidial stage was not found, although it is stated in the literature that the perfect and the imperfect fruiting bodies can each form their own clusters or can occur mixed in the same cluster (Breitenbach & Kraenzlin 1984).

Ordo: RHYTISMATALES M.E. Barr ex Minter 1986

Fam.: **Rhytismataceae** Chevall. 1826

Coccomyces tumidus (Fr.) De Not.

Specimen data: Fruška Gora, Osovlje, 45.162311° N, 19.709490° E, on the fallen leaf of *Fagus sylvatica*, leg & det. D. Savić, 07.09.2021, F.G. 1632. (Fig. 63).

Description: Apothecia subcuticular, gregarious, 1–2 *mm* diam, orbicular or elongate, dark brown, when immature appearing hat-shaped and than splitting open irregularly by teeth to expose the dull yellow to yellowish-tan hymenium. Asci cylindric-clavate, long-stalked, 190–200 × 16.5–17.5 *µm*, 8-spored ascus apex inamyloid. Paraphyses filiform, unbranched, 1–1,5 *µm* wide, with a bent tip. Ascospores filiforme to claviforme, 40–42 × 3.1–3.5 *µm*, aseptate, filled with oil drops. The characteristics of this sample align with those described by Sherwood (1980).

Notes: This species develops on fallen leaves of a variety of plants, commonest on *Quercus* and *Fagus,* but reported also on the leaves of other tree species. The species is very common and widespread in Europe and North America, and it has also been recorded in Mexico (Valenzuela & Raymundo 2019).

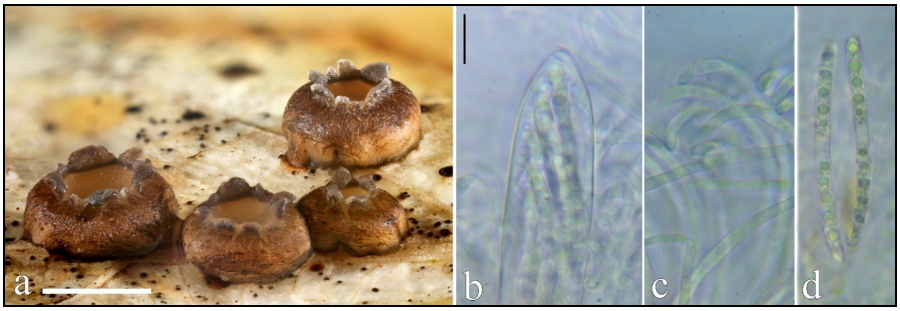

Fig. 63. – *Coccomyces tumidus* – a: Apothecia, *in situ*; b: Ascus; c: Paraphyses; d: Ascospores – Scale bars: 1 *mm* for a, 10 *µm* for b–d.

Colpoma juniperi (P. Karst.) Dennis

Specimen data: Golija, Rudno, 43.400624° N, 20.439209° E, on the branch of *Juniperus* sp., leg & det. D. Savić, 30.06.2023, F.G. 1900. (Fig. 64).

Description: Fruiting bodies gregarious, 0.5–1.8 *mm*, irregularly rounded to oval, develops under the bark of *Juniperus* spp. twigs, with further growth the epidermis cracks and reveals a pale brown-yellow hymenium, which is surrounded by a jagged black-brown margine. Asci 100–120 × 8 *µm*, long-stalked, 8-spored, ascospores arranged in parallel, ascus apex inamyloid. Paraphyses filiform, with spirally wound tips. Ascospores needle-shaped, slightly clavate (narrowing towards the base), 40–45 × 1.5–2 *µm*, hyaline, aseptate. This sample closely matches the description given by Holm & Holm (1977).

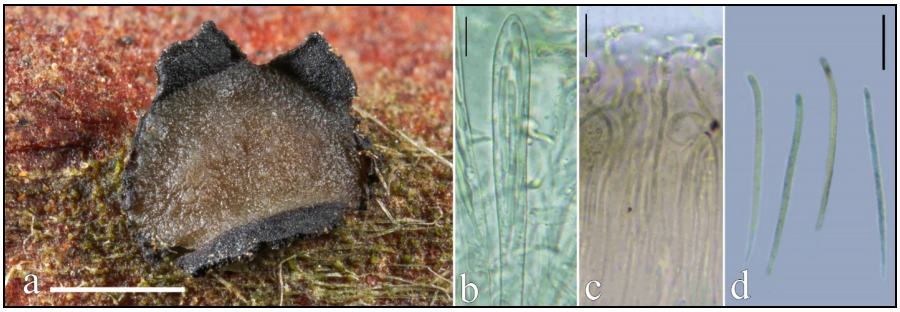

Fig. 64. – *Colpoma juniperi* – a: Apothecia, *in situ*; b: Ascus; c: Paraphyses; d: Ascospores – Scale bars: 1 *mm* for a, 10 *µm* for b–d.

Tryblidiopsis pinastri (Pers.) P. Karst.

Specimen data: Golija, Košaninova jezera, 43.474812° N, 20.414544° E, on the twigs of *Picea abies*, leg & det. D. Savić, 07.07.2024, F.G. 2010. (Fig. 65).

Notes: Speciments was find on dead thin twigs of *Picea abies*, still attached and on the ground. Apothecia black, circular, erumpent from the bark, 0,5–1.5 *mm* diam., singly or in clusters. Although very numerous at the location, all collected specimens were immature, which is why it was not possible to perform microscopic analysis. A detailed description of the characteristics of this species can be seen in Livsey & Minter (1994).

Fig. 65. – *Tryblidiopsis pinastri* – Apothecia, *in situ*.

Ordo: THELEBOLALES P.F. Cannon 2001

Fam.: **Thelebolaceae** Eckblad 1968

Ascophanus subcylindrosporus (J. Moravec) Svrček

Specimen data: Veliki Čemernik, Plavilo, 42.732755° N, 22.289938° E, on cow dung, leg. D. Stojanović, det. D. Savić. 04.07.2023, F.G. 1894. (Fig. 66).

Description: Apothecia sessile, pulvinate or almost discoidal with an indistinct margin, pale yellow, 0.3–0.4 *mm* diam.; outer surface smooth, the same colour as hymenium. Asci cylindric-claviform, 80–110 × 14–18 *μm*, 8-spored, slightly narrowed and flattened at the apex and with a short stalk, irregularly uniseriate or biseriate. Paraphyses cylindric-filiform, straight, inflated at the tips, 1.5–2 *μm* diam., septate, filled with vacuoles with yellowish pigments. Ascospores ellipsoidal, roundish at the ends, smooth, hyaline, 15.2–16 × 8–9 *μm*. This specimen is consistent with the description provided by Doveri (2004).

Notes: Fruiting bodies developed on a piece of cow dung after 3 weeks of incubation in a moist chamber.

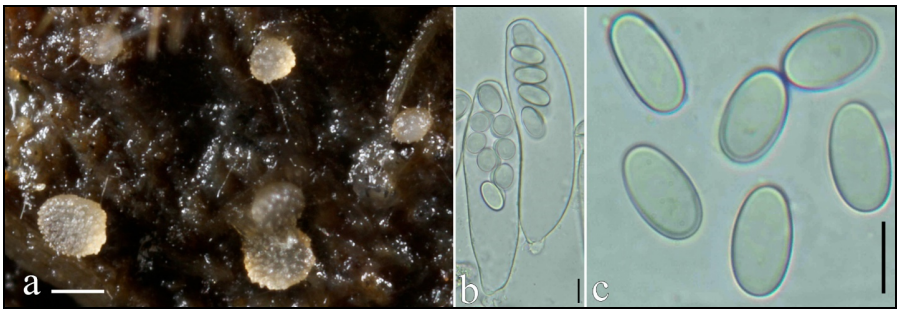

Fig. 66. – *Ascophanus subcylindrosporus* – a: Apothecia, *in situ*; b: Asci; c: Ascospores – Scale bars: 0.2 *mm* for a, 10 *μm* for b–c.

DISCUSSION

The collection of data on the presence of various life forms, in this case, certain groups of Ascomycetes, is important not only for understanding the biodiversity of a particular area or country but also for completing the distribution range of individual species and enhancing knowledge about their ecology.

The publication of the first checklist of fungi in the class Leotiomycetes for Serbia (Savić & Karaman 2016) consolidated data that indicated the presence of 238 species. Continued research on this fungal group from 2016 to 2020, culminating in a new paper supplementing the checklist (Savić 2020), increased the number of known species to 367. With the present paper, which includes findings from 2020 to date and adds information on four additional species from previously unavailable literature, the total number of known species in Serbia now stands at 433. The order Erysiphales, which also belongs to the class Leotiomycetes, was not covered in this or previous studies; however, it is documented (see Savić 2020) that 105 species of this order have been found in Serbia. Consequently, the total number of currently known Leotiomycetes species in Serbia is 538.

It remains difficult to estimate the full number of Leotiomycetes species present in Serbia. The relative ease with which new records continue to be discovered suggests that the actual number is likely far greater than what is presented in this and previous studies. Thus, this checklist must still be regarded as preliminary.

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НОВИ ПОДАЦИ ЗА ГЉИВЕ КЛАСЕ LEOTIOMYCETES У СРБИЈИ

ДРАГИША САВИЋ

Р Е З И М Е

Овај чланак представља прилог проучавању аскомицета из класе Leotiomycetes у Србији. У две раније публикације (Савић & Караман 2016 и Савић 2020) комбиновани су подаци из литературе и подаци добијени теренским истраживањем аутора на великом броју локалитета широм Србије. Наставком истраживања и активности на документовању налаза гљива из ове класе пронађено је више врста које до сада нису биле евидентиране на овом простору. У овом раду су дати подаци о налазима 70 врста, од којих су 66 први за подручје Србије, а 4 су из литературе чије је навођење изостало у претходним публикацијама.