

Notulae to the Italian flora of algae, bryophytes, fungi and lichens: 20

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Abstract

In this contribution, new data concerning algae, bryophytes, fungi and lichens of the Italian flora are presented. It includes new records, confirmations or exclusions for the algal genera *Chara*, *Hildenbrandia*, *Pleurotaenium*, and *Spirogyra*, the bryophyte genera *Braunia*, *Buxbaumia*, *Crossidium*, *Dicranum*, *Flexitrichum*, *Tortella* and *Ulota*, the fungal genera *Agaricus*, *Coltricia*, *Cortinarius*, *Gliophorus*, *Leucocoprinus*, *Leucoteliium*, *Microbotryum*, *Phaeocalicium*, *Phragmidium*, and *Polycoccum*, and the lichen genera *Anisomeridium*, *Arthonia*, *Chaenotheca*, *Cladonia*, *Gnaphis*, *Leptochidium*, *Melanelia*, *Rinodina*, *Scoliciosporum*, *Synalissa*, *Toninia* and *Trapelia*.

Keywords

Ascomycota, Basidiomycota, Bryidae, Charophyta, Rhodophyta

How to contribute

The text of the records should be submitted electronically to: Cecilia Totti (c.totti@univpm.it) for algae, Annalena Cogoni (cogoni@unica.it) for bryophytes, Alfredo Vizzini (alfredo.vizzini@unito.it) for fungi, Deborah Isocrono (deborah.isocrono@unito.it) for lichens. Each text should be within 1,000 characters (spaces included).

Floristic records

ALGAE

Chara gymnophylla A.Braun (Characeae)

+ **CAL**: Parco della Biodiversità Mediterranea, along the “Rizzitano Trail” at the height of the equestrian center (Catanzaro) (UTM WGS84: 33S 636590.4308890), seepage of groundwater on the soil, 260 m, 4 June 2023, leg. *A. Capuano*, det. *R. Romanov* (NHMM). – Species new for the flora of Calabria.

A small population was found thriving in a temporary humid spot, along a disturbed trail colonized also by hygrophilous vascular species. Heavily calcite-incrusted plants had condensed general habit because of shortened internodes. Dense placement of ecorticate branchlets with long unilateral bract-cells and conjoined gametangia hid isostichous to weakly aulacanthous diplostichous axial cortex with short solitary spine cells. According to Schubert et al. (2024), *C. gymnophylla* is considered as a species distinct from *C. vulgaris* L. in having corticate branchlets and branchlet nodes with bract-cells and gametangia between and at the top of upper corticate segments of branchlets only, and distinct from *C. squamosa* Desf. in having tylacanthous axial cortex. Currently, this species has been reported from Veneto, Liguria, Umbria, Lazio, Sicilia, Toscana, and recently from Abruzzo (Bazzichelli and Abdelahad 2009; Ravera et al. 2019, 2022, 2024).

R. Romanov, A. Capuano

Chara squamosa Desf. (Characeae)

+ **LOM**: Stelvio National Park, Valdidentro (Sondrio) (WGS84: 32T 594581.5159288), temporary pond, 1853 m, 19 June 2025, leg. *G. Patera*, det. *R. Romanov*, *G. Patera* (NHMM). – Species new for the flora of Lombardia.

Chara squamosa is currently known in Italy only from Sicilia, Sardegna, and Calabria (Romanov et al. 2019, 2024). The present record represents the first finding for Lombardia and, more broadly, a new record for Central-Northern Italy. The observed population developed within a small alkaline oligotrophic pond on silty substrate located on a fluvial terrace along the stream “Acqua del Gallo”, in contact with alpine pioneer formations of Caricion bicoloris-atrofuscae characterized by *Carex microglochin* Wahlenb. and *C. simpliciuscula* Wahlenb.

G. Patera, R. Romanov

Hildenbrandia rivularis (Liebmann) J.Agardh (Hildenbrandiaceae)

+ **TAA**: River Brenta, Municipality of Novaledo (Trento) (UTM WGS84: 32T 683964.5099229), 422 m, 23 January 2024, *D. Spitale* (TR). – Species new for the flora of Trentino-Alto Adige.

+ **EMR**: Spring Nove Fontane on the Monte Nero, Municipality of Bedonia (Parma) (UTM WGS84: 32T 541341.4934295), 1509 m, 4 August 2025, *M. Cantonati* (BOLO). – Species new for the flora of Emilia-Romagna.

The historical records of this species are summarized by Ceschin et al. (2013), and concern Veneto, Toscana, Lake Garda, and the central Apennines. These authors added a record for Abruzzo, while Cantonati et al. (2012) found it in five springs (sampled in 2005–2006) in Trentino, and Cantonati et al. (2020) in four springs (sampled in 2011) in Emilia, but no formal report was published. It is a scyaphilic, epilithic species (Cantonati et al. 2016) occurring from oligo - to eutrophic (Gutowski and Foerster 2009), and from saprobically unaffected to moderately-affected waters (Rott et al. 1999). According to the current German Red List for red algae it is not threatened (Foerster et al. 2018).

M. Cantonati, D. Spitale

***Pleurotaenium trabecula* Nägeli (Desmidiaceae)**

+ **CAL**: Foresta demaniale alto Aspromonte, Villaggio Canovai, Samo (Reggio Calabria) (UTM WGS84: 33S 564463.4224289), in a pond within the Calabrian pine forest used for the repopulation of the Apennine yellow-bellied toad, 1320 m, 22 August 2025, *F. D'Aleo* (REGGIO). – Species new for the flora of Calabria.

This species has been reported in Italy by Abdelahad et al. (2003), but they did not record it in Calabria. This is also the first record for southern Italy.

F. D'Aleo, C.M. Musarella, R. Bonanno

***Spirogyra neglecta* (Hassall) Kützing (Spirogyraceae)**

+ **CAL**: Pellaro, contrada Pantano (Reggio Calabria) (UTM WGS84: 33S 558200.4207886), in a pond inside a puddle at the base of a fountain with a trough, 120 m, 5 September 2025, *F. D'Aleo* (REGGIO). – Species new for the flora of Calabria.

This species is similar to *Spirogyra ternata* Ripart, which, however, could represent a variety, and it is distinguished by the zygospore orientation. In *S. neglecta*, the chloroplasts are 3, making 2.5 turns of the cell. In Europe, this species is reported in Belarus (Mikheyeva 1999), Britain (Brook and Johnson 2002; Pentecost and Haworth 2021), Britain and Ireland (Whitton et al. 2003; John et al. 2011), Latvia (Skuja 1928), Netherlands (Veen et al. 2015), Romania (Carauș 2017), Slovakia (Hindák and Hindáková 2016), Slovenia (Vrhovsek et al. 2006), Ukraine (Barinova et al. 2019; Tsarenko et al. 2024). However, in Italy this species was reported on GBIF (2025) in Piemonte with a herbarium specimen from the Natural History Collections of the Faculty of Biology AMU, Adam Mickiewicz University in Poznań, dated before the 20th century (POZ-A-0008821). This is the first preserved specimen entirely in alcohol and therefore suitable for evaluation.

F. D'Aleo, C.M. Musarella, R. Bonanno

BRYOPHYTES

***Braunia alopecura* (Brid.) Limpr. (Hedwigiaceae)**

+ **PIE:** Ossola Valley, Genestredo, Vogogna (Verbano-Cusio-Ossola) (UTM WGS84: 32T 446644. 5094962), 320 m, mafic granulite, 3 July 2025, *S. Scortegagna* (MNAV). – Species confirmed for the flora of Piemonte.

Braunia alopecura is a rare species in Italy, where recent confirmations exist for Lombardia and Trentino-Alto Adige but not for Valle d'Aosta, Liguria and, Piemonte (Aleffi et al. 2023). In the latter region, particularly in Ossola Valley, this species has been observed with abundant populations in sunny outcrops of mafic granulites together with other notable species such as *Brachythecium geheebii* Milde, *Campylopus pilifer* Brid., *Campylopus oerstedianus* (Müll.Hal.) Mitt., and *Hedwigia ciliata* (Hedw.) Beauv. The recorded locality is in geographical continuity with the Swiss ones, which are located in the Cantons of Ticino and Graubünden (Swissbryophytes 2004–2025). In the recent Italian Red List by Puglisi et al. (2024) the species has been considered as Vulnerable (VU).

S. Scortegagna

***Buxbaumia viridis* (Moug. ex Lam. & DC.) Brid. ex Moug. & Nestl. (Buxbaumiaceae)**

+ **EMR:** Monte Cantiere, Lama Mocogno (Modena) (UTM WGS84: 32T 631330.4903578), on dead wood of *Picea abies* (L.) H.Karst., 1545 m, 3 May 2025, *G. Pandeli* (CAG; SIENA). – Species confirmed for the flora of Emilia-Romagna.

+ **TOS:** Loc. Le Regine, Abetone (Pistoia) (UTM WGS84: 32T 634703.4887650), on a rotting wood of *Picea abies* (L.), 1327 m, 3 August 2025, *G. Pandeli* (SIENA; Herb. Pandeli); Loc. Cecchetto, Abetone (Pistoia) (UTM WGS84: 32T 636233.4887382), on rotting logs of *Picea abies* (L.) H.Karst., 1196 m, 22 March 2024, *G. Pandeli* (SIENA; Herb. Pandeli); Fosso dell'Abetina, Abetone (Pistoia) (UTM WGS84: 32T 634138.4889367), on dead wood of *Picea abies* (L.) H.Karst. and *Abies alba* Mill., 1345 m, 31 July 2025, *G. Pandeli* (SIENA; Herb. Pandeli); Valle delle Pozze, Abetone Cutigliano (Pistoia) (UTM WGS84: 32T 630775.4889912), on dead woody debris of *Picea abies* (L.) H.Karst. and *Abies alba* Mill., 1324 m, 10 May 2022, *G. Pandeli* (SIENA; Herb. Pandeli); Monte Gomito, Abetone (Pistoia) (UTM WGS84: 32T 632417.4889240), on rotting logs of *Abies alba* Mill., 1320 m, 21 August 2001, *I. Bonini* (SIENA). – Species confirmed for the flora of Toscana.

Buxbaumia viridis is a small epixylix moss (Puntillo and Puntillo 2024), protected in Europe and Italy (listed in Annex I of the Bern Convention and in Annex II of the Habitat Directive 92/43/CEE) and currently recorded in Valle D'Aosta, Piemonte, Lombardia, Trentino Alto-Adige, Friuli Venezia Giulia, Lazio, Abruzzo, Campania, Calabria (Aleffi et al 2023), with old records for Emilia-Romagna (Fiori 1886), Toscana (De Notaris 1869; Fiori 1886; Bottini 1887), and Veneto (Massalongo 1896; Saccardo 1872). These new records confirm the occurrence of

this species in Emilia-Romagna and Toscana after about 140 years since the last findings (De Notaris 1869; Fiori 1886; Bottini 1887; Fariselli et al. 2024). All the citations in more recent works (Castaldo 1972–1973; Beni 1983) are not original and refer to nineteenth century records.

G. Pandeli, I. Bonini, M. Aleffi

***Crossidium squamiferum* (Viv.) Jur. (Pottiaceae)**

+ **VEN**: M. Pallone, Trissino (Vicenza) (UTM WGS84: 32T 683969.5049979), 310 m, sunny and arid basaltic outcrop, 16 March 2025, *S. Scortegagna* (MNAV). – Species confirmed for the flora of Veneto.

+ **MOL**: Montenero di Bisaccia (Campobasso) (UTM WGS84: 33T 482169.4644576), 240 m, road embankment, 7 June 2025, *S. Scortegagna* (MNAV). – Species confirmed for the flora of Molise.

Crossidium squamiferum is a submediterranean species occurring in almost all Italian regions, but in many of them, including Veneto and Molise, there are no confirmation after 1968 (Aleffi et al. 2023). This is probably a species in real decline, as indicated by its VU status, with an estimated reduction of more than 30%, in the Swiss Red List by Schnyder et al. (2004). In Italy, however, it has been classified as Least Concern (LC) by Puglisi et al. (2024).

S. Scortegagna

***Dicranum flagellare* Hedw. (Dicranaceae)**

+ **EMR**: Modena Apennines, Monfestino, Serramazzone (Modena) (UTM WGS84: 32T 645332.4921337), 640 m, 7 March 2025, rotting chestnut stump, *S. Scortegagna* (MNAV). – Species new for the flora of Emilia-Romagna.

Dicranum flagellare is a saprolignicolous and, more rarely, corticolous species, reported for all the Alpine regions from Valle d’Aosta to Friuli Venezia Giulia (Aleffi et al. 2023), but thought to be absent further south. This is therefore the southernmost record of this species in Italy. This species was detected in its preferred habitat, represented by rotting stumps in a chestnut-dominated forest. In the recent Italian Red List by Puglisi et al. (2024) the species has been considered as Least Concern (LC).

S. Scortegagna

***Flexitrichum gracile* (Mitt.) Ignatov & Fedosov (Flexitrichaceae)**

+ **ABR**: Marsica Mts, Moricento beach wood, Lecce nei Marsi (L’Aquila) (UTM WGS84: 33T 392182.463416), 1730 m, limestone outcrop in beech forest, 23 July 2019, *S. Scortegagna* (MNAV); Marsica Mts, Mt. Serrone, Pesco di Iorio Valley, Pescasseroli (L’Aquila) (UTM WGS84: 33T 394573.462796), 1830 m, limestone outcrop in pasture, 16 June 2024, *S. Scortegagna* (MNAV). – Species new for the flora of Abruzzo.

Flexitrichum gracile has not always been distinguished from the related *F. flexicaule* (Schwägr.) Ignatov & Fedosov (Frisvoll 1985), and this fact may explain the discontinuity of its records, many of which have not been confirmed in recent times (Aleffi et al. 2023). The observed populations are quite plentiful. In the recent Italian Red List by Puglisi et al. (2024) this species has been considered as Least Concern (LC).

S. Scortegagna

***Tortella angustifolia* (Jur.) Köckinger & Hedenäs (Pottiaceae)**

+ **VEN**: Dolomites, Livinallongo del Col di Lana, Passo Pordoi (Belluno) (UTM WGS84: 32T 716064.5151725), on limestone below trail 601, 2230 m, 2 July 2025, leg. A. Schäfer-Verwimp, I. Verwimp, det. A. Schäfer-Verwimp 42807 (BOZ, JE). – Species new for the flora of Veneto.

Tortella angustifolia is a recent segregate of the *Tortella tortuosa*-complex. It is widespread in the Alps, often found from the low montane to the subnival belt (Köckinger and Hedenäs 2023). The first record of the species in Italy comes from Südtirol/Trentino-Alto Adige (Schäfer-Verwimp et al. 2025).

A. Schäfer-Verwimp, P. Mair

***Tortella commutata* Köckinger & Hedenäs var. *commutata* (Pottiaceae)**

+ **VEN**: Dolomites, Livinallongo del Col di Lana, Passo Pordoi (Belluno) (UTM WGS84: 32T 716000.5151850), on sunny limestone alongside trail 601, 2265 m, 2 July 2025, leg. A. Schäfer-Verwimp, I. Verwimp, det. A. Schäfer-Verwimp 42800 (BOZ, JE); Passo Campolongo (Belluno) (UTM WGS84: 32T 720333.5155597), on sunny limestone, 1870 m, 2 July 2025, leg. A. Schäfer-Verwimp, I. Verwimp, det. A. Schäfer-Verwimp 42824 (JE). – Species new for the flora of Veneto.

Tortella commutata, another segregate of the *Tortella tortuosa*-complex, is by far the most common species of the complex in central Europe (Köckinger and Hedenäs 2023). It has a wide ecological amplitude and is found in both natural and man-made habitats, such as murals and roofs. The first record for Italy was by Köckinger and Hedenäs (2023) from Trentino-Alto Adige and subsequently found to be rather common in South Tyrol by Schäfer-Verwimp et al. (2025).

A. Schäfer-Verwimp, P. Mair

***Tortella fleischeri* (E. Bauer) J.J. Amann (Pottiaceae)**

+ **VEN**: Dolomites, Livinallongo del Col di Lana, Passo Valparola (Belluno) (UTM WGS84: 32T 729128.5158199), on limestone beside *Pinus mugo*, 2125 m, 29 June 2025, leg. A. Schäfer-Verwimp, I. Verwimp, det. A. Schäfer-Verwimp 42743 (BOZ, JE). – Species new for the flora of Veneto.

Tortella fleischeri is a cryophilous species of the *Tortella tortuosa*-complex. It prefers sites at or above the treeline of the calcareous mountain ranges (Köckinger and Hedenäs 2023). In Italy, however, this species does not appear to be as common as in the Austrian Alps. The first record comes from the administrative region of Trentino-Alto Adige/Südtirol (Köckinger and Hedenäs 2023), followed by a single record from South Tyrol by Schäfer-Verwimp et al. (2025).

A. Schäfer-Verwimp, P. Mair

***Ulotia coarctata* (P.Beauv.) Hammar (Orthotrichaceae)**

+ **TAA:** Lases, in loc. Buse del Giac (Trento) (UTM WGS84: 32T 672001.5112468), su ramo di *Alnus alnobetula* (Ehrh.) K.Koch), 755 m, 25 June 2024, F. Prosser (ROV 08251). – Species confirmed for the flora of Trentino-Alto Adige.

This finding is located within the SCI/SAC area “Lona - Lases” (IT3120049) and falls in a cold microclimate valley on porphyritic substrate. The microclimate here causes considerable bryophyte development, which also affects the branches of trees and shrubs. Despite previous bryological research (Pfaff 1933), this species had never been found at this site. Regionally, there was only one previous historical report for the Spronser Valley near Merano (Bamberger in Dalla Torre and Sarnthein 1904). According to Aleffi et al. (2023) this is a confirmation also for the whole of northern Italy.

F. Prosser

FUNGI

***Agaricus boisseletii* Heinem. (Agaricaceae)**

+ **CAM:** Arpaise (Benevento) (UTM WSG84: 33T 478143.4541329), in a Graveyard garden, on soil beneath *Cupressus sempervirens* L., 468 m, 10 November 2023, M. Zotti, G. Martino (PORUN). – Species new to Campania.

Several specimens were found at the site, either growing singly or in clusters. Upon sectioning, the basidiomes turned a wine-red color throughout the entire cut surface, with particularly intense staining in the central area of the pileus and along the stipe margins. The lamellae displayed a lamellar edge characterized by whitish granulations interspersed with ochraceous dots. Microscopic examination revealed distinctive catenulate cheilocystidia. *Agaricus boisseletii* is a rare species typically associated with *Cupressus* spp. litter, although not exclusively. It was first described in France (Heinemann 1987) and later reported in Portugal (Parra 2008). This species was previously recorded only once in Italy, in Toscana (<https://www.gruppomicologicosaccardo.org/erbario/4788-agaricus-boisseletii.html>). Our finding is the first record for Campania region and for southern Italy as a whole.

M. Zotti, I. Catalano, G. Martino

***Coltricia cinnamomea* (Jacq.) Murrill (Hymenochaetaceae)**

+ **CAL:** Mammola (Reggio Calabria) (UTM WGS84: 33S 606424.4246763), on the rocky vault of a mine among the roots of overhead *Quercus ilex* L. trees, 290 m, 28 April 2023, G. Sicoli, N.G. Passalacqua, D. Gargano (CLU F341). – Species new to Calabria.

A few pileate and centrally stipitate basidiomes were found separately attached to and sprouting from the rocky vault of a mine at about 10 m from the entrance, among roots presumably belonging to holm oak trees just standing overhead. Pilei were funnel-shaped, 2- to 4-cm wide, cinnamon-coloured, zoned and shiny above, below showing a poroid and rusty hymenophore (pores 2–5 per mm), decurrent on a finely velvety, coriaceous and brownish stipe. Hyphae were rust-brown, thick-walled and smooth, septate and clampless. Spores were smooth, subglobose to broadly ellipsoid, pale yellowish, 6.5–8.0 × 4.5–6.0 µm sized. Therefore, the fungus was identified as *Coltricia cinnamomea*, a non-common basidiomycete, but reported from several countries around the world, including southern Europe, ectomychorrhizal on angiosperms in the tropics (Tedersoo et al. 2007; Dai 2010; Tarafder et al. 2017). In Italy it seems occurring only in the north, besides Toscana and Sardegna (Onofri et al. 2013).

G. Sicoli, N.G. Passalacqua, D. Gargano

***Cortinarius biriensis* Brandrud & Dima (Cortinariaceae)**

+ **LIG:** Verlia, Sassello (Savona) (UTM WGS84: 32T 459963.4924331), on calcareous soil under white hornbeam (*Carpinus betulus* L.) and hazel (*Corylus avellana* L.), 484 m, 28 May 2023, F. Boccardo (GDOR5413). – Species new to Liguria.

Morphologically, our Ligurian collection fits well with the description of the *C. biriensis* reported in Brandrud et al. (2017). The newly nrITS sequence of the GDOR5413 voucher (GB: PX314714) shares 651/651 (100%) nucleotides compared with the holotype of *C. biriensis* sequence (GB: KX831118) confirming the morphological identification. According to Brandrud et al. (2017), *C. biriensis* has been reported from Estonia and Norway, and our collection is the first collection of this species in Liguria with molecular confirmation. The BLAST analysis on the UNITE database includes an environmental ITS sequence (UDB04242715) that shows a 100% identity (505/505pb) with our sample, suggesting that this species is also present in Sicilia.

F. Boccardo, F. Dovana

***Gliophorus irrigatus* (Pers.) A.M.Ainsw. & P.M.Kirk (Hygrophoraceae)**

+ **CAL:** Botanical Garden of the University of Calabria, Rende (Cosenza) (UTM WGS84: 33S 605997.4357299), on the ground among the litter of Downy oak (*Quercus pubescens* Willd.) trees, 204 m, 6 December 2024, N.G. Passalacqua, A.B. De Giuseppe, G. Sicoli (CLU F343). – Species new to Calabria.

Three agaricaceous basidiomes were separately found on the ground within a few square meters among the litter in a mixed coppice wood with *Q. pubescens* trees standing as main plant species. The pilei were 1–2 cm wide, viscid, dark brown, campanulate, faintly striate at margin and obtusely umbonate. Stipes were cylindrical, 2–5 cm long, 3–4 mm thick, and light grey. The gills were broadly adnate and whitish. The spores were smooth, hyaline, broadly ellipsoid and $7\text{--}9 \times 4\text{--}6 \mu\text{m}$ in size. Based on the above characteristics the fungus was identified as *Gliophorus irrigatus*, previously known as *Hygrocybe unguinosa* (Fr.) P.Karst. (Boertmann 2010; Lodge et al. 2014). This species has been reported only in north-western Italy, so far (Onofri et al. 2013).

N.G. Passalacqua, A.B. De Giuseppe, G. Sicoli.

***Leucocoprinus birnbaumii* (Corda) Singer (Agaricaceae)**

+ **CAL:** Botanical Garden, University of Calabria, Rende (Cosenza) (UTM WGS84: 33S 605925.4357139), in a plant pot hosting a bonsai of *Olea europaea* L., 215 m, 27 August 2024, A.B. De Giuseppe, N.G. Passalacqua, G. Sicoli (CLU F342). – Species new to Calabria.

A basidiome of a fungus was detected at the base of the stem of an olive-tree bonsai potted in a shady open space inside the Botanical Garden at the University of Calabria. The pileus was 4.0 cm, convex, pale yellow, deeply striate, with a distinct brownish umbo and uniformly- and concentrically-distributed small floccose and concolor scales on a pale-yellow ground. The gills were free, narrow and pale yellowish, the stipe obclavate and concolor with the pileus, with a clear but fleeting ring. The spores were hyaline, amygdaloid, dextrinoid and $7\text{--}10 \times 5\text{--}7 \mu\text{m}$, the cheilocystidia fusoid to clavate. The fungus was then identified as *Leucocoprinus birnbaumii* (Smith 1981; Moser 1986; Knudsen 1992; Courtecuisse and Duhem 1995). Though very common in greenhouses and plant pots from temperate Eurasia, and despite the tropical origin (Justo et al. 2020), it also occurs widely in Italy, but apparently has not yet been formally observed in Calabria (Onofri et al. 2013).

A.B. De Giuseppe, N.G. Passalacqua, G. Sicoli

***Leucoteliium cerasi* (Castagne) Tranzschel (Uropyxidaceae)**

+ **CAL:** Colle Marcione, Civita (Cosenza) (UTM WGS 84: 33S 610400.4414390), on leaves of *Eranthis hyemalis* (L.) Salisb., 1146 m, 26 April 2025, D. Puntillo (CLU F533). – Species new to Calabria.

Tranzschel (1935) established the genus *Leucoteliium* for its peculiar characteristics: subcuticular spermogonia and colorless teleutospores. Host alternation was demonstrated in vitro by himself (Tranzschel 1935). *Leucoteliium cerasi* is heteroecious fungus. Its life cycle is hetero-macrocytic (0, I, II, III). *Eranthis hyemalis* is the host for the haploid (spermogonium – 0) and dikaryotic stage (aecium – I), while dikaryotic uredium (II) and telium (III) form on hosts of *Prunus* sp. pl. (Riegler-Hager 2007; Kruse et al. 2015). The species was collected on leaves; these were provided with epiphyllous spermogonia and hypophyllous aecidiosori.

D. Puntillo

***Microbotryum majus* (J.Schröt.) G.Deml & Oberw. (Microbotryaceae)**

+ **CAL:** Belvedere del Malvento, Pollino National Park, Morano Calabro (Cosenza) (UTM WGS 84: 33S 597188.4417554), on anthers of *Silene otites* (L.) Wibel, 1586 m, 21 June 2025, D. Puntillo (CLU F534). – Species new to Calabria.

Microbotryum is a genus of smut fungi comprising 89 species, limited to a specific host plant species, often belonging to Caryophyllaceae, more rarely to others. *Microbotryum majus* was described by Deml and Oberwinkler (1982) as *M. major*. This species infects the anthers, sometimes also the filaments, ovary and the basal part of the petals of *Silene otites* (L.) Wibel and other related species, producing a powdery black-purple spore mass in place of the pollen. The single spores are subglobose to elongated, finely reticulated with more or less irregular meshes.

D. Puntillo

***Phaeocalicium compressulum* (Vain.) A.F.W.Schmidt (Sphinctrinaceae)**

+ **VDA:** W Alps, Alpi Graie, Monte Bianco (Mont Blanc) group, Val Veny W of Courmayeur, moraines E of Lago di Combal (Aosta) (UTM WGS84: 32T 334363.5071410), 1980 m, siliceous boulders between scattered *Larix* trees, on twigs of *Alnus alnobetula* (Ehrh.) K.Koch, 30 July 2001, J. Hafellner (with P.L. Nimis and M. Tretiach) (GZU – JH87071); W Alps, Alpi Pennine, by the road from Aosta to the Colle del Gran San Bernardo, NW above Saint Rhémy-en-Bosses (Aosta) (UTM WGS84: 32T 358496.5077916), 1800 m, subalpine forest on E-facing slope, on twigs of *Alnus alnobetula*, 1 August 2001, J. Hafellner (with P.L. Nimis and M. Tretiach) (GZU – JH88403). – Species new to Valle d'Aosta.

+ **PIE:** W Alps, Alpi Liguri, E slopes of M. Bertrand, W above Úpega (Cuneo) (UTM WGS84: 32T 395866.4885654), 1900–1920 m, small outcrops of schists near a creek surrounded by open *Larix* forest with *Rhododendron* understory, on twigs of *Alnus alnobetula*, 20 July 2000, J. Hafellner (with P.L. Nimis and M. Tretiach) (GZU – JH88353); W Alps, Alpi Liguri, by the road from Monesi to Úpega, small valley S above Úpega (Cuneo) (UTM WGS84: 32T 397753.4885470), 1600 m, open forest with dominant *Larix decidua* Mill., on twigs of *Alnus alnobetula*, 18 July 2000, J. Hafellner (with P.L. Nimis and M. Tretiach) (GZU – JH88361). – Species new to Piemonte.

+ **LIG:** W Alps, Alpi Liguri, slopes SW above Monesi (Imperia) (UTM WGS84: 32T 398791.4880670), 1630 m, open *Larix* forest used for cattle grazing, on twigs of *Alnus alnobetula*, 18 July 2000, J. Hafellner (with P.L. Nimis and M. Tretiach) (GZU – JH87494); *Ibid.*, 1650 m, P. L. Nimis, M. Tretiach (TSB 33070). – Species new to Liguria.

The presence of this ascomycete can be easily overlooked due to the lack of a visible thallus and its minute stalked ascospores with laterally compressed capitula. Although a non-lichenized fungus, this species is usually collected and treated by lichenologists. In central Europe, it is a specific colonizer of twigs of *Alnus viridis* agg. The distribution of the fungus roughly reflects that of its phorophytes, both showing Holarctic patterns. Most records are from Europe, but the species is also known from eastern Asia

(e.g., Tibell and Thor 2003; Titov 2006) and North America (e.g., Tibell 1975; Selva et al. 2023). In Italy *A. alnobetula* occurs only in the Alps and therefore also the ascomycete can be expected only in Alpine regions. The so far relatively few records in northern Italy (Nimis 2025) indicate an increasing rarity, namely in the Western Alps which may reflect the westward thinning of *Alnus* populations or may be due to under-collecting in a rarely explored ecological niche.

J. Hafellner, P. L. Nimis, M. Tretiach

***Phragmidium sanguisorbae* (DC.) J.Schröt. (Phragmidiaceae)**

+ **CAL:** Bosco di Mavigliano, Montalto Uffugo (Cosenza) (UTM WGS 84: 33S 604498.4359926 on leaves of *Poterium sanguisorba* L. 221 m, 29 January 2025, D. Puntillo (CLU F531). – Species new to Calabria.

This species was first allocated in the genus *Puccinia* (De Candolle 1815) and after transferred in the genus *Phragmidium* (Schröter 1887), a genus of rust fungi infecting plants of the family Rosaceae. All species have a caeoma with diffuse aecidium lacking a peridium and stalked teliospores, which are produced by telia consisting of four or more cells in a row. The species is monophagous on *Poterium sanguisorba* L. and grows on the underside of their leaves.

D. Puntillo

***Polycoccum pulvinatum* (Eitner) R.Sant. (Polycoccaceae)**

+ **PIE:** Western Alps, Alpi Liguri, E ridge of Cima Ventosa (Cime Ventose) next to the secondary gravel road, N above Monesi, (Cuneo) (UTM WGS84: 32T 398588.4881908), outcrops of slightly calcareous schists among scattered *Larix* trees, on low S-exposed outcrops, on thallus of *Physcia dubia* (Hoffm.) Lettau, 1830 m, 18 July 2000, J. Hafellner (with P.L. Nimis and M. Tretiach) (GZU – JH87279). – Species new to Piemonte.

This gall-inducing lichenicolous ascomycete (for a detailed description see Vězda 1969, under the name *Polycoccum galligenum* Vězda) is specialized on *Physcia*, of which *P. dubia* (Hoffm.) Lettau and *P. caesia* (Hoffm.) Fürnr. are the most common hosts. The overall distribution has been roughly lined out by Brackel (2014). This fungus is known from both hemispheres and all continents, but the majority of records comes from Europe, where it appears to be widespread from the boreal to the southern-montane region. In Italy, the species was so far recorded from both provinces of Trentino-Alto Adige (Hafellner 1994a), Calabria (Brackel and Puntillo 2016), and Sardegna (Nimis and Poelt 1987; Brackel and Berger 2019).

J. Hafellner, P. L. Nimis, M. Tretiach

***Polycoccum sporastatae* (Anzi) Arnold (Polycoccaceae)**

+ **TAA:** Eastern Alps, Central Alps, S Rhaetian Alps, Ortler-group (Stelvio-group), ca. 8 km N above Cógolo, La Cascata S above Lago Lungo, summit area (Trento) (UTM WGS84: 32T 629341.5142646), 2575 m, boulders of micaschist in alpine vegetation,

on vertical rock faces, on thallus of *Sporastatia testudinea* (Ach.) A.Massal., 27 July 2006, J. Hafellner (with L. Muggia and M. Tretiach) (GZU – JH69350); Ibid., on thallus of *Sporastatia polyspora* (Nyl.) Grummann, J. Hafellner (with L. Muggia and M. Tretiach) (GZU – JH69349). – Species confirmed for Trentino-Alto Adige.

+ **LOM**: Eastern Alps, S Rhaetian Alps, Adamello-group, Passo Gallinera c. 7 km S above Vezza d'Oglio, SE above the pass in the lowermost part of the ridge to Corno di Gallinera o Duel (Brescia) (UTM WGS84: 32T 609233.5114927), 2340 m, outcrops and cliffs of calcareous schist partly rich in iron, on inclined rock faces, on thallus of *S. testudinea*, 25 July 2006, J. Hafellner (with J. Nascimbene, L. Muggia and M. Tretiach) (GZU – JH88340); Eastern Alps, S Rhaetian Alps, Adamello-group, Passo di Val Fredda (Passo Valfredda) c. 9 km E above Breno, N above the pass in the lowermost part of the ridge to Monte Frerone (Brescia) (UTM WGS84: 32T 609705.5088385), 2350 m, outcrops and cliffs of Val Fredda pluton (tonalite) in alpine vegetation, on low outcrops, on thallus of *S. testudinea*, 26 July 2006, J. Hafellner (with L. Muggia and M. Tretiach) (GZU – JH88352). – Species confirmed for Lombardia.

+ **VDA**: Western Alps, Alpi Graie, Gran Paradiso, near the trail from Pont to the Rifugio Vittorio Emanuele II (Aosta) (UTM WGS84: 32T 361077.5041578), 2550 m, boulders of gneiss in alpine vegetation on slope exposed to NW, on vertical rock faces, on thallus of *S. testudinea*, 31 July 2001, J. Hafellner (with P.L. Nimis and M. Tretiach) (GZU – JH87044); Western Alps, Alpi Pennine, Colle del Gran San Bernardo, just SW below the pass (Aosta) (UTM WGS84: 32T 357153.5081436), 2500 m, outcrops of siliceous rocks in alpine grassland on steep slope exposed to the S, on vertical rock faces, on thallus of *S. polyspora*, 1 August 2001, J. Hafellner (with P.L. Nimis and M. Tretiach) (GZU – JH87143); Ibid., on thallus of *S. testudinea*, 1 August 2001, J. Hafellner (with P.L. Nimis and M. Tretiach) (GZU – JH87144). – Species new to Valle d'Aosta.

+ **PIE**: Western Alps, Alpi Marittime, cirque E below the summit of Rocca dell'Abisso (Vallone dell'Abisso), W of Colle di Tenda, (NW below the Fort de Giaure) (Cuneo) (UTM WGS84: 32T 381466.4888521), 2250 m, boulders of gneiss in alpine heath, on steep rock faces of large boulders, on thallus of *S. testudinea*, 22 July 2000, leg. J. Hafellner, A. Hafellner (with P.L. Nimis and M. Tretiach), det. J. Hafellner (GZU – JH87596). – Species confirmed for Piemonte.

+ **SAR**: Monte del Gennargentu, Bruncu Spina, along uppermost part of trail ascending from Arcu de Tascussi (Passo di Tascusi) (Nuoro), (UTM WGS84 32T 525610.4429523), 1800 m, siliceous schist, on thallus of *S. testudinea*, 21 July 1985, leg. P.L. Nimis, J. Poelt s. n., det. J. Hafellner (GZU). – Species new to Sardegna.

This lichenicolous ascomycete is specialized on *Sporastatia*. We did not observe any preference for *S. polyspora* (host of type) or *S. testudinea*. In larger *Sporastatia* populations of the alpine belt, searches for the immersed ascomata of the species are often successful. The overall distribution of the fungus has been roughly outlined by Brackel (2014) indicating a Holarctic distribution pattern. Whereas reports from North America and Asia are still few, records from Europe are already numerous, indicating that the species appears to be widespread from the arctic to the southern-alpine to nival region. Reports from Italy are so far few, most of them dating back to the 19th century. The species is recorded from Friuli Venezia Giulia (Tretiach and Hafellner 2000),

Trentino-Alto Adige (Arnold 1887), Lombardia (with the type locality in Sondrio, Valfurva, see Anzi 1866), and Piemonte (Baglietto and Carestia 1880).

J. Hafellner, P. L. Nimis, M. Tretiach

LICHENS

Anisomeridium polypori (Ellis & Everh.) M.E. Barr (Monoblastiaceae)

+ **CAM**: Cratere degli Astroni, Pozzuoli (Napoli) (UTM WGS84: 33T 428363.4521250), on bark of *Robinia pseudoacacia* L., 35 m, 30 October 2014, leg. I. Catalano, D. Puntillo, det. D. Puntillo (CLU 17461); *ibidem*, on bark of *Fraxinus ornus* L., 35 m, 30 October 2014, leg. I. Catalano, D. Puntillo, det. D. Puntillo (CLU 17462). Loc. Vesolo, Laurino (Salerno) (UTM WGS84: 33T 528637.4460473), on *Hedera helix* L., 1050 m, 20 June 2025, leg. M. Agostini, L. Di Nuzzo, L. Paoli, S. Ravera, det. S. Ravera (PAL). – Species new to Campania.

Anisomeridium polypori is a mild-temperate, possibly Holarctic species widely distributed across temperate to boreal regions, including Africa, Asia, Europe, and North America (Aptroot 1999). It is predominantly found colonizing rough bark of broad-leaved trees in humid, shaded habitats, but also reported from dead wood, bryophytes, brick and siliceous rocks. Long overlooked in Italy, it is probably widespread, with optimum in the sub-Mediterranean belt (Nimis 2025). In western Europe it has shown a marked increase in frequency in recent decades. Easily identified with a hand lens by pycnidia bearing a long, thin appendage.

I. Catalano, D. Puntillo, S. Ravera

Arthonia granosa B. de Lesd. (Arthoniaceae)

+ **TOS**: Riserva naturale Lago di Burano, Capalbio (Grosseto) (UTM WGS84: 32T 694850.4696788), on *Quercus suber* L., 0 m, 16 August 2025, S. Ravera (PAL). – Species new to Toscana.

Arthonia granosa is a rare Mediterranean–Atlantic species, doubtfully lichenized, mostly found on cork oak (Ravera et al. 2018). It is characteristic of the *Arthonietum granosae* Giralte & Gómez-Bolea 1987, restricted to humid coastal sites with maritime influence. In Italy it is mainly Tyrrhenian and assessed as “Vulnerable” in the national Red List (Nascimbene et al. 2013).

R. Benesperi, S. Ravera

Chaenotheca chrysocephala (Ach.) Th.Fr. (Coniocybaceae)

+ **PIE**: Graian Alps, Val Grande di Lanzo, Chialamberto, alpeggio degli Urturé (Torino) (UTM WGS84: 32T 369233.5023487), on *Larix decidua* Mill. trunk, 1390 m, 18 August 2021, D. Isocrono, A. Chiariglione (ORO 99, Hb. A. Chiariglione); Alpi Liguri just E below Upega on right Bank of the creek (Cuneo) (UTM WGS84: 32T

369233.5023487), on *Larix decidua* Mill., 1300 m, 18 August 2000, P.L. Nimis, M. Tretiach (with J. Hafellner) (TSB 33638); Prigelato (Torino) (UTM WGS84: 32T 336334.4984794), on bark of *Larix decidua* Mill., 1620 m, 1991, J. Nascimbene (Hb. Nascimbene 359). – Species confirmed for Piemonte.

Chaenotheca chrysocephala is a boreal-montane lichen with a bright green-yellow crustose thallus and a dense yellowish pruina on the underside of the capitulum. It typically colonizes the acid bark of trees, mainly in the montane belt and subalpine belts, in moderately shaded conditions. In Piemonte, the species had previously been recorded only once, in Valsesia (Baglietto and Carestia 1880) from 19th-century collections (Nimis 1993; Isocrono et al. 2004; Puntillo and Puntillo 2009).

D. Isocrono, P.L. Nimis, J. Nascimbene

***Chaenotheca ferruginea* (Sm.) Mig. (Coniocybaceae)**

+ **PIE:** Graian Alps, Val Grande di Lanzo, Chialamberto, alpeggio degli Urturé (Torino) (UTM WGS84: 32T 369233.5023487), on *Larix decidua* Mill. trunk, 1390 m, 18 August 2021, D. Isocrono, A. Chiariglione (ORO 98, Hb. A. Chiariglione). – Species confirmed for Piemonte.

Chaenotheca ferruginea is a crustose lichen with a granular-verrucose to slightly pulverulent thallus, usually whitish-grey, often with localized orange to rusty patches reacting K⁺ purple. It is most frequently found in bark fissures of conifers, often in sheltered positions. This species is rare in Italy and restricted to natural habitats (Nimis 2025). In Piemonte, it was previously known only from a historical record (Baglietto and Carestia 1880, on the bark of *Picea abies* (L.) H.Karst. in the “selva le Teste a Riva”) (Isocrono et al. 2004; Puntillo and Puntillo 2009).

D. Isocrono

***Cladonia ramulosa* (With.) J.R.Laundon (Cladoniaceae)**

+ **BAS:** Monte S. Croce, San Fele (Potenza) (UTM WGS84: 33T 549507.4514369), on soil above schist, 1300 m, 1 October 2024, leg. G. Potenza, L. Rosati, det. G. Gheza (HLUC 1104). – Species new to Basilicata.

Cladonia ramulosa grows on bare soils, humus, decaying wood, with a preference for siliceous substrates. It is a cosmopolitan species distributed from temperate to southern boreal-montane zones (Ahti and Stenroos 2013).

G. Potenza, L. Rosati, G. Gheza

***Graphis pulverulenta* (Pers.) Ach. (Graphidaceae)**

+ **CAM:** River Palistro, San Biase di Ceraso, (Salerno) (UTM WGS84: 33T 526019.4449586, 686 m, on *Alnus cordata* (Loisel.) Duby, 686 m, 19 June 2025, leg. M. Agostini, L. Di Nuzzo, L. Paoli, S. Ravera, det. S. Ravera (PAL). – Species new to Campania.

Graphis pulverulenta is an epiphytic crustose lichen belonging to the *G. scripta* group. It is distinguished by its apothecia, which typically have sharply pointed ends and conspicuously exposed discs covered with a white to greyish pruina. Although morphologically close to *G. scripta*, the taxonomic boundaries within this complex remain uncertain. Pending a detailed revision of the Italian specimens, *G. pulverulenta* is provisionally treated as a distinct species by Nimis (2025).

S. Ravera, M. Agostini, L. Di Nuzzo

***Leptochidium albociliatum* (Desm.) M. Choisy (Massalongiaceae)**

+ **TOS:** Sorgente Bugnano, the foot of Mt. Amiata, Seggiano (Grosseto), forest of *Castanea sativa* Mill. with ancient trees (UTM WGS84: 711607.4753262), on soil and among bryophytes, 980 m, 12 September 2025, leg. A. Guttová, L. Paoli, det. A. Guttová (SAV0021566). – Species new to Toscana.

Leptochidium albociliatum is a lichen with gelatinose, small-foliose thallus, dark brownish, blackish to olive-green thallus forming cushions up to 8 cm. The margins of rounded lobes are lined with white hairs, very well visible under the hand lens and the lamina of the upper thalline surface bears vegetative propagules – granular isidia. The specimen is also fertile with several young as well as mature (convex disc) apothecia (diameter up to 1.5 mm). Apothecial disc is reddish-brown, the proper margin is lined with white hairs. Narrowly-ellipsoid spores (18–20 × 6–7 µm) are hyaline, with one septum. Pycnidia were not observed. Lower surface with white, fasciculate hapters (Ismailov and Urbanavichus 2024; Nimis 2025).

L. Paoli, A. Guttová

***Melanelia stygia* (L.) Essl. (Parmeliaceae)**

+ **BAS:** Monte Volturino, Marsicovetere (Potenza) (UTM WGS84: 33T 569330.4472730), on siliceous rocks, 1533 m, 11 July 2011, G. Potenza, S. Fascetti, D. Puntillo (HLUC 805). – Species new to Basilicata.

It is a circumpolar, arctic-alpine lichen, in Italy found in open habitats on siliceous rocks, with optimum near and above treeline; widespread in the Alps where it reaches the nival belt, it is much rarer in the high Mediterranean mountains. Specimens from Calabria and Sardegna (herbarium TSB) are worthy of further study (Nimis 2025).

G. Potenza, D. Puntillo, S. Fascetti

***Rinodina albana* (A.Massal.) A.Massal. (Physciaceae)**

+ **CAL:** on NW-facing slope of Mt. Timpone di Viggianello, Morano Calabro (Cosenza) (UTM WGS84: 33S 595526.4417533), in beech forest, on bark of *Fagus sylvatica* L., 1630 m, 7 May 2012, leg. J. Malíček, I. Frolov, J. Vondrák, det. J. Malíček (PRA). – Species new to Calabria.

Rinodina albana is a temperate crustose species typically found on the bark of deciduous trees with a relatively smooth surface in forests. Its apparent rarity may in part

reflect difficulties in identification, as it is frequently confused with similar taxa; however, it is probably more widespread in Italy than currently documented (Nimis 2025).

J. Malíček, S. Ravera

***Scoliciosporum pruinosum* (P. James) Vězda (Scoliciosporaceae)**

+ **TOS:** Murlo, Valle del Crevole (Siena), in a humid mixed oak forest near Crevole river (UTM WGS84: 692288.4783840), on bark of *Quercus* sp., 270 m, 22 March 2025, leg. L. Paoli, det. Z. Fačkovcová (SAV0021202). – Species new to Toscana.

Scoliciosporum pruinosum generally grows on bark (especially of old oaks), with optimum in humid deciduous forests of environments with very low eutrophication (often along rivers), such as in the study site. So far there are only few records in Italy, where it is included in the Italian Red List of epiphytic lichens as “Endangered” (Nascimbene et al. 2013).

L. Paoli, Z. Fačkovcová

***Synalissa ramulosa* (Bernh.) Fr. (Lichinaceae)**

+ **BAS:** Monte Castello, San Fele (Potenza) (UTM WGS84: 33T 545540.4519034), on damp limestone rocks, 880 m, 14 April 2025, G. Potenza, D. Puntillo, M. Puntillo, L. Rosati (HLUC 1106). – Species new to Basilicata.

Synalissa ramulosa is a mainly southern species in Europe, found on steeply inclined faces of calcareous rocks with periodical water seepage, often overgrowing the thalli of *Romjularia lurida* (Ach.) Timdal, with a wide altitudinal range but with optimum at relatively low elevations (Nimis 2025).

G. Potenza, D. Puntillo, L. Rosati

***Toninia plumbina* (Anzi) Hafellner & Timdal (Ramalinaceae)**

+ **SIC:** Rocca Busambra S of Marineo, N-exposed slopes in Bosco della Ficuzza (Palermo) (UTM WGS84: 33S 357545.4191641), 1000–1100 m, *Quercus - Fraxinus ornus* forest, on bark of *Quercus* spec., on thallus of *Pectenaria plumbea* (Lightf.) P.M.Jørg., L.Lindblom, Wedin & S.Ekman, 1 June 1988, J. Hafellner (with J. Poelt and P.L. Nimis) (no. 85081 GZU) (label text in German). – Species new to Sicilia.

The lichenicolous species is lecto-typified on an Anzi collection stored in UPS (Timdal 1992), without locality data but according to the protologue (Anzi 1862) originating from Tuscany. Together with its main host *Pectenaria plumbea* (Lightf.) P.M.Jørg., L.Lindblom, Wedin & S.Ekman, *Toninia plumbina* has a temperate-Atlantic to humid-Mediterranean distribution. Further isolated populations are known along the eastern coast of the Adriatic Sea (Slovenia, Bosnia and Herzegovina, Montenegro), continuing to the south in the eastern Mediterranean and with a further enclave in the Caucasus (S Russia). The records in this part of the Mediterranean area appear to be concentrated around the Tyrrhenian Sea, both in the mainland and on the delimiting islands in the west, Corsica (Hafellner 1994b) and Sardegna (Baglietto

1879; Nimis and Poelt 1987). *Toninia plumbina* is included in the Italian Red List of epiphytic lichens and is classified as “Near-Threatened” (Nascimbene et al. 2013).

J. Hafellner, P.L. Nimis

***Trapelia coarctata* (Sm.) M. Choisy (Trapeliaceae)**

+ **ABR:** Monti della Laga, Rocca Santa Maria (Teramo) (UTM WGS84: 33T 369461.4724812), on a sandstone pebble near the soil in a forest dominated by *Abies alba* Mill., 1485 m, 7 April 2024, leg. M. Di Donatantonio, B. De Ruvo, det. P.L. Nimis (TSB 45826). – Species new to Abruzzo.

This species is a Holarctic early coloniser of siliceous pebbles near the soil surface, sometimes also found on bare clayey soil, with a wide altitudinal and altitudinal range. In Italy it is most frequent in upland areas, becoming rare, and mostly Tyrrhenian, in the eu-Mediterranean belt. This record is a nice example of Citizen Science: a photo of the sample, posted by B. De Ruvo (Teramo) on his Facebook page, was accidentally seen by P. L. Nimis, who asked for a sample in order to confirm the identification.

M. Di Donatantonio, S. Dose, P. L. Nimis

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