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Contribution to the knowledge of lichenicolous fungi and lichens from Portugal and Spain

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Abstract: Lichenicolous fungi, collected from 1983-1999 at many localities in Portugal, are recorded. 57 taxa are recognized. Most records mentioned below are new for continental Portugal. Some specimens from continental Spain are also reported here. Amongst the most interesting species recorded are: *Capronia triseptata, Cornutispora limaciformis, Lichenopeltella ramalinae, Lichenopuccinia poeltii, Melaspilea lentiginosa, Opegrapha rotunda, Plectocarpon sampaianae, P. scrobiculatae, Refractohilum galligenum, Roselliniopsis groedensis* and *Tremella lobariacearum*.

Zusammenfassung: 57 Arten lichenicoler Pilze, zwischen 1983 und 1999 an zahlreichen Lokalitäten in Portugal gesammelt, werden behandelt. Die meisten Funde sind Erstnachweise für das kontinentale Portugal. Einige Aufsammlungen aus dem kontinentalen Spanien werden beigefügt. Besonders bemerkenswerte Arten sind *Capronia triseptata, Cornutispora limaciformis, Lichenopeltella ramalinae, Lichenopuccinia poeltii, Melaspilea lentiginosa, Opegrapha rotunda, Plectocarpon sampaianae, P. scrobiculatae, Refractohilum galligenum, Roselliniopsis groedensis* und *Tremella lobariacearum*.

Although G. SAMPAIO and C. TAVARES, the most important Portuguese lichenologists from the 20th century, collected many lichens in Portugal, they did not mention lichenicolous fungi. Only a few lichenicolous lichens such as *Buellia badia* (FR.) MASSAL., *Rimularia furvella* (NYL. ex MUDD) HERTEL & RAMBOLD, *R. insularis* (NYL.) HERTEL & RAMBOLD or *Cecidonia umbonella* (NYL.) TRIEBEL & RAMBOLD are mentioned in TAVARES (1950, 1954), or in SAMPAIO (1970).

Since 1983, the first author collected lichens, as well as lichenicolous fungi systematically in Portugal. Additional records of lichenicolous fungi have been found in herbarium packets of earlier collections. One important lichenicolous collection from the nineties, from Portugal, is *Tremella parmeliarum* DIEDERICH, published as the only record from Europe in DIEDERICH (1996). Several further records of lichenicolous fungi are published in BOOM & GIRALT (1996, 1999).

Because of the short period of exploration of lichens and lichenicolous fungi of Portugal, is to be expected a large amount of additions in future. So this paper is a first step forward to the knowledge of the lichenicolous flora of Portugal.

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Although many suitable localities with luxuriant *Lobarion* communities visited, in which *Lobaria pulmonaria* (L.) HOFFM. occurs abundantly, until now, only four lichenicolous fungi are recorded from *L. pulmonaria*, whereas ETAYO & DIEDERICH (1996 a) reported 21 species growing on *L. pulmonaria* from the western parts of French and Spanish Pyrenees only, so there is a lot of work to do in this type of community in Portugal.

In this paper, a total of 57 taxa of lichenicolous fungi is reported from Portugal and Spain. Most of them are new records for continental Portugal. They are marked by an asterisk *. Several taxa, mentioned below have been published already for Portugal, thus the records in this paper represent additional localities. Collections have been carried out by the first author during seven trips to Portugal from the year 1983 to 1999. The samples are deposited in the private herbarium of the first author and a few in the herbarium of the second author.

The species list

***Abrothallus bertianus* DE NOT.**
It was recorded by BOOM & GIRALT (1999), also from northern Portugal in the area of Villa Real. It has also been recorded several times from northern Spain (LÓPEZ DE SILANES & al. 1998)

Portugal: Tras-os-Montes, N of Bragança, Montesinho, NE of village, path to storage lake, on *Melanelia exasperata* (DE NOT.) ESSL. on *Betula* near source, 1200 m s. m., 7. 8. 1997, V. D. BOOM 19490.

***Abrothallus parmeliarum* (SOMMERF.) ARNOLD**
According to CLAUZADE & al. (1989) this cosmopolitan species is known from *Parmelia* s. str., but the record on *Parmelia omphalodes* (L.) ACH. seems to be the first on this lichen.

Portugal: Estremadura, Sintra (W) along the road from Sintra to Convento dos Capuchos, on *Parmelia saxatilis* (L.) ACH. on well-lit granite, c. 400 m s. m., 9. 8. 1987, V. D. BOOM 6527. Beira-Alta, Serra da Estrela, 9.5 km SSW of Manteigas, Cantaro Raso, on *Parmelia omphalodes* on granite, 29TPE 194-649, 1830 m s. m., 17. 7. 1998, V. D. BOOM 20297; - NW of Villa Real, 8 km E of Ermelo, on *P. saxatilis* on *Castanea*, 1000 m s. m., 18. 7. 1999, V. D. BOOM 23071.

****Bachmaniomyces uncialicola* (ZOPF) D. HAWKSW.**
It is known in the Iberian Peninsula from Navarra (ETAYO & DIEDERICH 1996 b).

Portugal: Beira Litoral, SSW of Oliveira do Hospital, Serra do Açor, on stump of *Castanea*, on *Cladonia* spec. squamules, 550 m s. m., 21. 7. 1999, V. D. BOOM 23140.

***Biatoropsis usnearum* RÄSÄNEN**
This species is already mentioned from Algarve and Estremadura in DIEDERICH & CHRISTIANSEN (1994).

Portugal: Tras-os-Montes, Serra do Gerês, SW of Cabril, near Pincães, *Quercus robur* L. forest, on *Quercus suber* L., on *Usnea* spec., 450 m s. m., 24. 7. 1999, V. D. BOOM 23214.

***Buellia badia* (FR.) A. MASSAL.**
It is several times mentioned from Portugal (TAVARES 1950, SAMPAIO 1970, BOOM & GIRALT 1996) and seems to be a common species in the country.

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Portugal: Tras-os-Montes, Serra do Gerês, N of Paradela, cleft with waterfall, on E sloping outcrops, on *Aspicilia* spec., 800 m s. m., 27. 7. 1999, V. D. BOOM 23408; - - on *Lecanora* cf. *bolcana* (POLL.) POELT, V. D. BOOM 23406.

***Buelliella* aff. *physciicola* POELT & HAF.**

Our specimen was growing on *Phaeophyscia orbicularis* (NECKER) MOBERG and differs from the original description in the strongly capitate tips of paraphyses, young spores with apical gelatine and remaining hyaline when mature.

Portugal: Alto Douro, NE of Villa Real, Matteus, castle garden, on *Opuntia*, 16. 7. 1999, V. D. BOOM 22931.

***Capronia triseptata* (DIEDERICH) ETAYO**

ETAYO (1996 a) reported this species from Mallorca and Cáceres. In Portugal, it occurred on the same genus *Parmelina* as in the Peninsula.

Portugal: Tras-os-Montes, Serra do Gerês, NE of Cabril, near Xertelo, roadside *Quercus* trees, on *Quercus*, on *Parmelina quercina* (WILLD.) HALE, 700 m s. m., 25. 7. 1999, V. D. BOOM 23225.

***Catillaria atomarioides* (MÜLL. ARG.) KILIAS**

This is a rather well-known lichen species, only scarcely reported as parasite in Europe. It has been recorded from southern Portugal by BOOM & GIRALT (1996) and from Madeira (KALB & HAFELLNER 1992). The specimens mentioned below are growing distinctly as a parasite on lichens. It must have been overlooked when growing parasitical.

Portugal: Tras-os-Montes, NE of Mogadouro, near Castanheira, granite outcrops near chappel, on N sloping granite, on *Dimelaena oreina* (ACH.) NORMAN, 990 m s. m., 12. 7. 1999, V. D. BOOM 22767 and 22753.

Spain: Asturias, Picos de Europa, SE of Covadonga, on weakly calcareous rock, on *Rhizocarpon distinctum* TH. FR., 1250 m s. m., 24. 7. 1989, V. D. BOOM 9012. Almeria, Sierra de los Filabres, 20 km NNW of Sorbas, Pto. de la Virgin, sunny acid rocks, on *Lecidella subincongrua* (NYL.) HERTEL & LEUCK., 900 m s. m., 14. 7. 1989, V. D. BOOM 8750a; - - on *Verrucaria* spec., V. D. BOOM 8749; - - on *Rhizocarpon* spec., V. D. BOOM 8730a.

***Catillaria nigroclavata* (NYL.) SCHULER**

This species is relatively common on large foliaceous lichens like *Lobaria* spp. An account of lichen hosts of this species and of records appears in MARTÍNEZ & HAFELLNER (1998). In one sample the apothecia are less intensively pigmented then usual.

Portugal: Beira-Alta, Serra da Estrela, 1.5 km ESE of Manteigas, road to Poco do Inferno, on *Lecanora scrobiculata* (SCOP.) DC. on *Acer*, 7°32.0'W, 40°20.7'N, 1025 m s. m., 21. 7. 1998, V. D. BOOM 20595.

***Cecidonia umbonella* (NYL.) TRIEBEL & RAMBOLD**

It was recorded by TAVARES (1954) from Serra da Estrela and recently by BOOM & GIRALT (1999). These records are from higher altitudes than our collection.

Portugal: Beira-Alta, Serra da Estrela, NE of Manteigas, Corredor de Mouros, path to top, on *Lecidea lactea* FLÖRKE ex SCHAER. on NE exposed schistose outcrops on slope, 1225 m s. m., 26. 7. 1997, V. D. BOOM 19134.

***Cercidospora epipolytropa* (MUDD) ARNOLD**

This species is widely distributed in Europe.

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Portugal: Tras-os-Montes, Serra do Gerês, N of Paradela, cleft with waterfall, on *Lecanora polytropa* (HOFFM.) RABENH., 800 m s. m., 27. 7. 1999, V. D. BOOM 23410.

***Cornutispora limaciformis* PIROZYNSKI**

In this genus of *Coelomycetes* frequently several species have been described. But the complex *C. lichenicola* D. HAWKSW. & B. SUTTON and *C. limaciformis*, the latter with larger conidia, is in need of being studied. Our collection was found on apothecia of *Lecanora muralis* (SCHREBER) RABENH.

Spain: Mallorca, ENE of Soller, Sierra Torrellas, 0.8 km E of Son Torrella, on low calcareous outcrops in meadow, 975 m s. m., 5. 4. 1997, V. D. BOOM 18586.

***Corticifraga fuckelii* (REHM) D. HAWKSW. & R. SANT.**

This widely distributed species is known from several European countries (HAWKSWORTH & SANTESSON 1990), including Spain and the Canary Islands (MARTÍNEZ & HAFELLNER 1998).

Portugal: Beira-Alta, Serra da Estrela, W of Manteigas, S route to Penhas Dousadas, small road south of crossing, on S side of boulder, on *Peltigera neopolydactyla* (GYELNIK) GYELNIK, 1100 m s. m., 23. 7. 1997. V. D. BOOM 19407, 19408.

***Cyphelium sessile* (PERS.) TREVIS.**

This species is common on several *Pertusaria* spp. in *Quercus*-woods in northern Spain and was also previously recorded by BOOM & GIRALT (1999) from north eastern Portugal.

Portugal: Ribatejo, 7 km of Tomar, road to Olalhas, Pelinos, campsite, on *Pertusaria* cf. *coronata* (ACH.) TH. FR. on *Olea*, 100 m s. m., 4. 8.1997, V. D. BOOM 19587.

***Dactylospora lobariella* (NYL.) HAF.**

It is widely distributed and recorded from several localities in Spain (ETAYO & DIEDERICH 1996 a, MARTÍNEZ & HAFELLNER 1998).

Portugal: Algarve, Serra de Monchique, 3 km near Casais along road to Marmelete, on *Lobaria pulmonaria* on *Olea europaea*, 400 m s. m., 20. 7. 1983, V. D. BOOM 970a. Tras-os-Montes, NW of Vinhais, near Zido, *Castanea* orchard, on *Castanea*, on *Lobaria pulmonaria*, 750 m s. m., 28. 7. 1999, V. D. BOOM, 23433; - Serra do Gerês , W of Cabril, Pincães, roadside *Quercus robur*, on *Quercus*, on *Lobaria pulmonaria*, 450 m s. m., 24. 7. 1999, V. D. BOOM 23188.

***Dactylospora parellaria* (NYL.) ARNOLD**

It was previously known from Central Europe (CLAUZADE & al. 1989).

Portugal: Algarve, Serra de Monchique, on *Ochrolechia parella* (L.) MASSAL., on siliceous boulder, 900 m s. m., 18. 7. 1983, V. D. BOOM 863a.

***Diplolaeviopsis ranula* GIRALT & D. HAWKSW.**

It was previously known only from Cataluña (Spain), (GIRALT & HAWKSWORTH 1990) and from southern Portugal (BOOM & GIRALT 1999).

Portugal: Estremadura, Sintra (W) along the road from Sintra to Convento dos Capuchos on *Lecanora strobilina* (SPRENGEL) KIEFFER on twig of *Pinus*, c. 400 m s. m., 9. 8. 1987, V. D. BOOM 6514a.

***Endococcus* aff. *perpusillus* NYL.**

This species is widely distributed in Europe on several crustose, saxicolous lichens. It was not recorded from Portugal by TRIEBEL (1989). As stated by SÉRUSIAUX & al.

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(1999) this genus is probably more diverse than previously thought, so perhaps the taxon growing on *Lecidea* belongs to another related species.

Portugal: Beira-Alta, Serra da Estrela, 8 km SSW of Manteigas, deep valley S of Lagoa da Paixao, on *Rhizocarpon* spec. on vertical granite, 1700 m s. m., 19. 7. 1998, V. D. BOOM 20348; - 12.5 km SW of Manteigas, SW of Lagoa Comprida, Penha do Gato, on *Rhizocarpon* spec. on vertical granite, 1765 m s. m., 18. 7. 1998, V. D. BOOM 20327; - Serra da Estrela, 11 km SSW of Manteigas, W of Lago do Viriato, "tor" Cascalvo, on *Lecidea* spec. on granite, 1680 m s. m., 21. 7. 1998, V. D. BOOM 20594.

***Endococcus rugulosus* NYL.**

It is widely distributed, but was not recorded from continental Portugal by TRIEBEL (1989), although listed for Madeira by KALB & HAFELLNER (1992).

Portugal: Beira-Alta, Serra da Estrela, 5 km SW of Manteigas, 1 km N of Corral do Martins, "tor" along path, on *Aspicilia* spec. on exposed granite outcrops, 1670 m s. m., 20. 7. 1998, V. D. BOOM 20430; - Serra da Estrela, 12 km SW of Manteigas, SW of Lagoa Comprida, Fonte de Luzianos, on *Aspicilia* spec. on horizontal granite, 1665 m s. m., 18. 7. 1998, V. D. BOOM 20338.

****Lichenoconium erodens* M. S. CHRIST. & D. HAWKSW.**

This is a plurivorous species known from Spain on several hosts and common in many localities in Europe. An account of records and hosts appeared in MARTÍNEZ & HAFELLNER (1998).

Portugal: Beira-Alta, Serra da Estrela, 1.5 km SE of Manteigas, road to Poco do Inferno, on *Lecanora chlarotera* NYL. on *Larix*, 7° 32.5'W, 40° 20.6'N, 960 m s. m., 22. 7. 1998, V. D. BOOM 20596; - - on *Protoblastenia* spec., V. D. BOOM 20597. Tras-os-Montes, NE of Mogadouro, near Castanheira, *Castanea* orchard, on *Castanea*, on *L. chlarotera*, 800 m s. m., 12. 7. 1999, V. D. BOOM 22767. Alto Douro, NW of Villa Real, Parc Natural Alvão, near Pioledo, *Castanea* orchard, on *Castanea*, on *Parmelia saxatilis*, 1000 m s. m., 18. 7. 1999, V. D. BOOM 23071.

Spain: Mallorca, E of Felanitx, Santuario San Salvador, on *Ramalina* spec. on *Quercus ilex* L., 250 m s. m., 3. 4. 1997, V. D. BOOM 18660; - - on *Parmelia* spec., V. D. BOOM 22723.

****Lichenoconium lecanorae* (JAAP) D. HAWKSW.**

It is known from few localities in Spain, growing on several lichen species.

Portugal: Tras-os-Montes, N of Bragança, Montesinho, NE of village, path to storage lake, on *Lecanora* spec. on *Betula*, 1200 m s. m., 7. 8. 1997, V. D. BOOM 19522. Alentejo, Porto Covo, 1 km S of village, coastal dune area, *on Parmotrema chinense* (OSBECK) HALE & AHTI, on dead branch of *Acacia*, 50 m s. m., 31. 7. 1997, V. D. BOOM 19438.

****Lichenoconium xanthoriae* M. S. CHRIST.**

This species, growing on several foliaceous lichens, has been reported before on *Cetraria sepincola* (EHRH.) ACH. by HAWKSWORTH (1981) and SANTESSON (1993) as well.

Portugal: Beira-Alta, Serra da Estrela,10 km SW of Manteigas, 0.3 km SSW of Lagoa Comprida, small stream "Pragueira" with shrubs, on *Cetraria sepincola* on *Erica arborea* L., 1605 m s. m., 21. 7. 1998, V. D. BOOM 20510.

***Lichenodiplis lecanorae* (VOUAUX) DYKO & D. HAWKSW.**

It is a common species which is widely distibuted in Europe. Known from northern Spain, in a wide range of hosts and from Madeira (KALB & HAFELLNER 1992), it is probably new to continental Portugal.

Portugal: Estremadura, 25 km of Setubal, Aldeia do Meio, road Sesimbra-Espichel on *Pertusaria* spec. on *Populus*, 14. 8. 1987, V. D. BOOM 6610a; - - on *Pertusaria* spec. on *Ficus carica* L., 12. 8. 1987, V. D. BOOM 6622, 6639b. Alentejo, S of Sines, Cabo Sardão, W exposed cliff, on *Caloplaca*

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spec., 75 m s. m., 2. 8. 1997, V. D. BOOM 19209. Algarve, N of Albufeira, near Alte, orchard with *Ceratonia* and *Olea*, on *Ceratonia*, on *Lecanora albella* (PERS.) ACH., 400 m s. m., 30. 7. 1993, V. D. BOOM 14933.

***Lichenopeltella ramalinae* ETAYO & DIEDERICH**

This species was recently described from Papua New Guinea and the Canary Islands (ETAYO & DIEDERICH 1997, ETAYO 1996 b).

Portugal: Tras-os-Montes, Serra da Gerês, near Pitões das Júnias, *Quercus* forest, on *Quercus*, on *Ramalina farinacea* (L.) ACH., 1000 m s. m., 27. 7. 1999, V. D. BOOM 23013.

***Lichenopuccinia poeltii* D. HAWKSW. & HAF.**

This species is of apparently oceanic distribution and it is known from several countries (ETAYO & DIEDERICH 1996 b).

Portugal: Alto Douro, NW of Villa Real, Parc Natural do Alvão, near Lamas de Olo, *Quercus* along grassland, on *Parmelia sulcata* TAYLOR, 1000 m s. m., 18. 7. 1999, V. D. BOOM 23065.

***Lichenostigma elongata* NAV.-ROS. & HAF.**

Samples on *Pertusaria* are very similar in habit to those growing on *Aspicilia* s. l. which were described by NAVARRO-ROSINÉS & HAFELLNER (1996).

Spain: Castilla la Nueva, Toledo, S of city, on *Pertusaria amara* (ACH.) NYL. var. *flotowiana* (FLK.) ERICHS. on well-lit granite in N-exposed slope, ca. 500 m s. m., 9. 8. 1985, V. D. BOOM 3121.

***Lichenostigma maureri* HAFELLNER**

This is a common lichenicolous fungus, known from many European countries. New to continental Portugal, it was yet known from Madeira (KALB & HAFELLNER 1992).

Portugal: Tras-os-Montes, Serra do Gerês, SW of Cabril, near Pincães, *Arbutus* forest, *on A. unedo*, on *Usnea* spec., 525 m s. m., 25. 7. 1999, V. D. BOOM 23279.

***Marchandiomyces corallinus* (ROBERGE) DIEDERICH & D. HAWKSW.**

This species is widely distributed in Europe (ETAYO & DIEDERICH 1996 b) and is also known from northern America.

Portugal: Tras-os-Montes, Serra do Gerês, NE of Cabril, near Xertelo, *Quercus robur* in field, on *Quercus* branch, on *Melanelia exasperata*, 700 m s. m., 25. 7. 1999, V. D. BOOM, 23238; - Paradela, centre, on *Thuya* along road, on *Parmelina tiliacea* (HOFFM.) HALE, 750 m s. m., 26. 7. 1999, V. D. BOOM 23353.

***Melaspilea lentiginosa* (LYELL ex LEIGHTON) MÜLL. ARG.**

This species, covering completely the thallus of *Phaeographis dendritica* (ACH.) MÜLL. ARG. with its lirellate apothecia, is known only from oceanic Europe: England, Ireland and France (HAWKSWORTH & al. 1992).

Portugal: Estremadura, Sintra (W), near Castela da Pena, on *Phaeographis dendritica* on *Acer* in parking place, 500 m s. m., 9. 8. 1987, V. D. BOOM 6525a.

***Milospium graphideorum* (NYL.) D. HAWKSW.**

At the locality mentioned here it grew abundantly. It was previously known from northern Spain.

Portugal: Estremadura, 25 km W of Setubal, area of Aldeia do Meio, on *Arthonia pruinata* (PERS.) A. L. SM. on *Olea* in orchard, road to Espichel, 100 m s. m., 14. 8. 1987, V. D. BOOM 6587, 6644a, 6678, 6679.

Spain: Asturias, 35 km E of Cangas de Onis, 10 km of Panes, S of Trescares, *Castanea* forest, on *Castanea*, on *Arthonia* spec. 250 m s. m., 23. 7. 1989, V. D. BOOM s.n.

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***Muellerella lichenicola* (SOMMERF.: FR.) D. HAWKSW.**

Samples growing on *Bacrospora patellarioides* (NYL.) ALMQ. have long and acute spores, which are slightly different of the typical ones.

Portugal: Alentejo, Porto Covo, 1 km S of village, coastal dune area, on *Caloplaca holocarpa* (ACH.) WADE on branches of *Juniperus phoenicea* L. in dunes, 50 m s. m., 31. 7. 1997, V. D. BOOM 19160. Algarve, Armacao de Pera, at the campsite, on *Pertusaria flavida* (DC.) LAUNDON on *Ficus carica*, 16. 7. 1983, V. D. BOOM 828b. Estremadura, SSW of Setubal, Cabo Espichel seashore, on *Aspicilia calcarea* (L.) MUDD on calcareous rock, 14. 8. 1987, V. D. BOOM 6618a.

Spain: Mallorca, WNW of Palma, WNW of Estallencs, near Puerto de Estallencs, N sloping *Pinus* wood along small road with calcareous outcrops, on *Caloplaca variabilis* (PERS.) MÜLL. ARG., 50 m s. m., 31. 3. 1997, V. D. BOOM 18304; - ENE of Soller, Sierra Torrellas (E), road to Sa Calobra, 1 km W of crossing with road C-710 near Desfiladero, on *C. variabilis*, 850 m s. m., 5. 4. 1997, V. D. BOOM 18653; - between Cala D'or and Porto Colom, Cala Arsenau, on *Bactrospora patellarioides* on *Juniperus phoenicea*, 20 m s. m., 3. 4. 1997, V. D. BOOM 18478; - Porto Colom (E), N of Sa Punta, open coastal area along road, *on Bactrospora patellarioides* on *Olea*, 50 m s. m., 3. 4. 1997, V. D. BOOM 18500.

****Muellerella pygmea* (KÖRB.) D. HAWKSW. var. *athallina* (MÜLL. ARG.) TRIEBEL**

Portugal: Beira-Alta, Serra da Estrela, 5 km SW of Manteigas, 1 km N of Corral do Martins, "tor" along path, on *Aspicilia* spec. on exposed granite outcrops, 29TPE 204-707, 1670 m s. m., 20. 7. 1998, V. D. BOOM 20429.

Muellerella pygmea* (KÖRB.) D. HAWKSW. var. *pygmea

Hyperparasitism of this species on *Cecidonia umbonella* was already commented by TRIEBEL (1989). Apart of it, we have also studied samples on *Lecidea fuscoatra* (L.) ACH. and a *Lecidea* spec. in Portugal. It was already mentioned in BOOM & GIRALT (1996), but from a lower altitude, and from Madeira by KALB & HAFELLNER (1992).

Portugal: Beira-Alta, Serra da Estrela, NE of Manteigas, Corredor de Mouros, path to top, on *Cecidonia umbonella* on NE exposed schistose outcrops on slope, 1225 m s. m., 26. 7. 1997, V. D. BOOM 19134; - - SE of Lagoa Comprida, N of road from Luzianos to Covao do Boeiro, near fte. dos Perus, on *Lecidea fuscoatra* on horizontal outcrop, 7°37.5'W, 40°22.0'N, 1850 m s. m., 24. 7. 1997, V. D. BOOM 19047; - - 11 km SSW of Manteigas, W of Lago do Viriato, "tor" Cascalvo, on *Lecidea* spec. on granite, 29TPE 209-634, 1680 m s. m., 21. 7. 1998, V. D. BOOM 20592, 20593; - - 9.5 km SSW of Manteigas, Cantaro Raso, on esteril on granite, 29TPE 193-650, 1900 m s. m., 17. 7. 1996, V. D. BOOM 20286. Tras-os-Montes, SE of Torre de Moncorvo, near Mós, S exposed outcrops, on *Lecidea fuscoatra*, 15. 7. 1999, V. D. BOOM 22926.

****Nectriopsis lecanodes* (CESATI) DIEDERICH & SCHROERS**

(= *Nectria lecanodes* CESATI in RABENH.)

It was recorded from France and Spain in ETAYO & DIEDERICH (1996 a) and ETAYO (1998) and from Madeira by KALB & HAFELLNER (1992). This species is most common on several members of *Peltigerales*.

Portugal: Beira-Alta, Serra da Estrela, W of Manteigas, S route to Penhas Dousadas, small road south of crossing, on *Lobaria pulmonaria* on *Fraxinus*, 1100 m s. m., 23. 7. 1997, V. D. BOOM 19028. Tras-os-Montes, NW of Bragança, Mofreita, S of village, on *L. pulmonaria* on *Castanea*, 900 m s. m., 8. 8. 1997, V. D. BOOM 19381; - - E of Torre de Moncorvo, Lagoaca valley of Douro, on mossy wall, on *Nephroma* spec., 550 m s. m., 15. 7. 1999, V. D. BOOM 22886.

****Opegrapha rotunda* HAF.**

This recently described species (HAFELLNER 1994) was known from Austria and all collections are from the host *Physconia distorta* (WITH.) LAUNDON.

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Portugal: Tras-os-Montes, W of Bragança, 1 km W of Vinhais, roadside trees on *Physconia distorta* on *Castanea sativa*, 4. 7. 1995, V. D. BOOM 16917.

***Paranectria oropensis* (CESATI in RABENH.) D. HAWKSW. & PIROZ.**

This species in known from a wide range of hosts and is widely distibuted in Europe.

Portugal: Tras-os-Montes, Serra do Gerês, NE of Cabril, near Xertelo, *Quercus robur* in field, on *Megalospora tuberculosa* (FÉE) SIPMAN, 650 m s. m., 26. 7. 1999, V. D. BOOM 23294; - - small *Quercus* wood with boulders, on vertical surface of boulder, on *Cladonia* squamules, 700 m s. m., 25. 7. 1999, V. D. BOOM 23230.

***Phacopsis oxyspora* (TUL.) TRIEBEL & RAMBOLD var. *fusca* TRIEBEL & RAMBOLD**

This is the first record from continental Portugal of this variety with brown hypothecium, I-. Distribution and hosts are recorded in TRIEBEL & al. (1995).

Portugal: Beira-Alta, Serra da Estrela, W of Manteigas, Barragem de Vale Rossim, N side of lake, on *Hypogymnia tubulosa* (SCHAER.) HAV. on *Salix*, 1450 m s. m., 25. 7. 1997, V. D. BOOM 19096. Tras-os-Montes, N of Bragança, Montesinho, NE of village, path to storage lake, on *Xanthoparmelia* spec. on granite outcrops near source, 1200 m s. m., 7. 8. 1997, V. D. BOOM 19321.

Phacopsis oxyspora* (TUL.) TRIEBEL & RAMBOLD var. *oxyspora

[= *Nesolechia oxyspora* (TUL.) A. MASSAL.]

This is the first record from continental Portugal of this variety with hypothecium I+ blue, growing on several parmeliaceous hosts. One of them: *Parmelia omphalodes* was not recorded by TRIEBEL & al. (1995). KALB & HAFELLNER (1992) also reported *P. oxyspora* (two varieties) from Madeira.

Portugal: Beira-Alta, Serra da Estrela, 9.5 km SSW of Manteigas, Cantaro Raso, on NNW exp. rocks along steep granites, 29TPE 194-649, on *Parmelia omphalodes*, 1830 m s. m., 17. 7. 1998, V. D. BOOM 20298. Minho, 32.5 km NE of Braga, Parque National da Gerês N of Gerês, on *Platismatia glauca* (L.) CULB. & CULB., on *Acer*, c. 1000 m s. m., 6. 8. 1987, V. D. BOOM 6443a; - - near Pitões das Júnias, *Quercus* forest, on boulder, 1000 m s. m., on *Platismatia glauca*, 27. 7. 1999, V. D. BOOM 23028; - - W of Cabril, near Fafião, *Quercus robur* forest, on *Quercus*, on *Parmelia saxatilis*, V. D. BOOM 22985.

***Phaeosporobolus alpinus* R. SANT., ALSTRUP & D. HAWKSW.**

The species is mainly known from the hosts *Ochrolechia* and *Pertusaria* and is widespread in Europe.

Portugal: Ribatejo, 7 km of Tomar, road to Olalhas, Pelinos, campsite, on *Pertusaria pertusa* (WEIGEL) TUCK., on *Olea*, 100 m s. m., 4. 8. 1997, V. D. BOOM 19587. Minho, 32.5 km NE of Braga, Parque National da Gerês N of Gerês, on *Pertusaria* spec. on *Acer*, c. 1000 m s. m., 6. 8. 1987, V. D. BOOM 6407; - - on *Ochrolechia* spec. on *Pinus*, 5. 8. 1987, V. D. BOOM 6463. Estremadura, 25 km W of Setubal, area of Aldeia do Meio, on *Lecanora* cf. *carpinea* (L.) VAIN. on *Ficus carica*, 100 m s. m., 12. 8. 1987, V. D. BOOM 6625a. Tras-os-Montes, Serra do Gerês, N of Paradela, Outeiro, small trees among schist outcrops, on *Euonymus*, on *Maronea constans* (NYL.) HEPP, 700 m s. m., 27. 7. 1999, V. D. BOOM 23366.

***Phoma* cf. *cytospora* (VOUAUX) D. HAWKSW.**

The conidia of 6-9 x 2-2.5 µm, straight or slightly curved, and longer than typical *P. cytospora* ones. In the Iberian Peninsula it is known from Cantabria, Navarra and Teruel (LÓPEZ DE SILANES & al. 1999).

Portugal: Tras-os-Montes, SE of Torre de Moncorvo, near Maçores , *Castanea* orchard, on *Castanea* on *Melanelia* spec., 750 m s. m., 14. 7. 1999, V. D. BOOM 22852.

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***Plectocarpon sampaianae* DIEDERICH & ETAYO**

This oceanic species was previously known from France, Scotland and Spain (ETAYO & DIEDERICH 1998).

Portugal: Minho, 32.5 km NE of Braga, Parque National da Gerês, N of Gerês, on *Acer*, on *Fuscopannaria sampaiana* (TAV.) P. M. JØRG., c. 1000 m s. m., 6. 8. 1987, V. D. BOOM 6414a. Tras-os-Montes, Serra do Gerês, W of Cabril, near Pincães, scattered *Quercus robur* mixed with *Q. suber*, on *Q. robur*, on *F. sampaiana*, 450 m s. m., 24. 7. 1999, V. D. BOOM 23212.

***Plectocarpon scrobiculatae* DIEDERICH & ETAYO**

According to ETAYO & DIEDERICH (1998) and MARTINEZ & HAFELLNER (1998), this species is known from several localities in Spain.

Portugal: Tras-os-Montes, Serra do Gerês, W of Cabril, Pincaes, *Quercus robur* forest, on *Quercus*, on *Lobaria scrobiculata* (SCOP.) DC., 450 m s. m., 24. 7. 1999, V. D. BOOM 23209; - - Fafiao, *Quercus robur* forest, on *Quercus*, on *L. scrobiculata*, 450 m s. m., 24. 7. 1999, V. D. BOOM 22987.

***Pyrenidium actinellum* NYL.**

This is a species-complex widely distibuted in Spain and known from a wide range of hosts.

Portugal: Tras-os-Montes, SE of Torre de Moncorvo, Açoreira, acid outcrops in *Pinus* wood, on *Dimelaena* spec., 750 m s. m., 14. 7. 1999, V. D. BOOM 22853. Algarve, Serra Monchique along road to Foia, on *Ficus carica*, on *Phaeophyscia orbicularis*, 550 m s. m., 18. 7. 1983, V. D. BOOM 883a.

***Refractohilum galligenum* D. HAWKSW.**

This species was previously known from Great Britain and Sweden (CLAUZADE & al. 1989), Spain (ALVÁREZ & CARBALLAL 1992) and the Canary Islands (HAFELLNER 1995).

Portugal: Tras-os-Montes, Montesinho, N of Bragança, NE of village, path to storage lake, on *Nephroma* spec. on *Quercus*, 1200 m s. m., 7. 8. 1997, V. D. BOOM 19321.

***Rhizocarpon lusitanicum* (NYL.) ARNOLD**

It is a Mediterranean to sub-Mediterranean species, recorded from Portugal to Bulgaria (POELT & HAFELLNER 1982) and Macaronesia (POELT 1990, KALB & HAFELLNER 1992).

Spain: Almería, Sierra de los Filabres, 20 km NWN of Sorbas, W of road Uleila del Campo to Albanchez 0.5 km NE of Puerto de la Virgen, on *Pertusaria amara* on shaded acid rock, 1000 m s. m., 14. 7. 1989, V. D. BOOM 8736.

***Rimularia insularis* (NYL.) RAMBOLD & HERTEL**

It was already recorded by TAVARES (1954) from Serra da Estrela.

Portugal: Beira-Alta, Serra da Estrela, NE of Manteigas, Corredor de Mouros, path to top, on *Lecanora rupicola* (L.) ZAHLBR., on NE exposed schistose outcrops on slope, 1225 m s. m., 26. 7. 1997, V. D. BOOM 19138. Tras-os-Montes, NW of Bragança, Mofreita, S of village, on *L. rupicola* on schistose outcrops, 900 m s. m., 8. 8. 1997, V. D. BOOM 19607.

***Roselliniopsis groedensis* (ZOPF) MATZER & HAF.**

This species is known from Italy, Austria (MATZER & HAFELLNER 1990) and from Luxembourg (SÉRUSIAUX & al. 1999).

Portugal: Algarve, 1 km N of Caldas de Monchique on very old *Q. suber*; on *Pertusaria hemisphaerica* (FLÖRKE) ERICHSEN, on new kork-layer of mature branch, along pathway, 250 m s. m., 18. 7. 1983, V. D. BOOM 896; - N of Albufeira, 1 km N of Alte, near spring, E slope along path, 8°10.8'W, 37°14.5'N, on *P. hemisphaerica* on *Ceratonia* spec., 400 m s. m., 30. 7. 1993, V. D. BOOM 14297a.

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***Sclerococcum sphaerale* (ACH.) FR.**

It was reported by BOOM & GIRALT (1996) from continental Portugal and by KALB & HAFELLNER (1992) from Madeira. It has also been recorded from several localities in Spain (ETAYO & CALATAYUD 1998, LÓPEZ DE SILANES & al. 1998).

Portugal: Beira-Alta, Serra da Estrela, SW of Lagoa Comprida, NW of Luzianos, S of road, near Penha do Gato, on *Pertusaria corallina* (L.) ARNOLD on horizonal sunny boulder, 1675 m s. m., 24. 7. 1997, V. D. BOOM 19070; - - 10 km SSW of Manteigas, road S of Covao do Boi, on *P. corallina* on vertical granite, 1655 m s. m., 17. 7. 1998, V. D. BOOM 20254; - - 5 km SW of Manteigas, 1 km N of Corral do Martins, "tor" along path, on *Pertusaria* spec. on exposed granite outcrops, 1670 m s. m., 20. 7. 1998, V. D. BOOM 20439; - 9.5 km SSW of Manteigas, Cantaro Raso, on *P. corallina*, 1890 m s. m., 17. 7. 1998, V. D. BOOM 20282; - Serra do Geres, Pitões das Júnias, *Quercus* forest, on shaded wall, 1000 m s. m., 27. 7. 1999, V. D. BOOM.

Spain: Asturias, puerto de Somiedo (N), well-lit siliceous N. exposed rock-slope along the road, on *Pertusaria corallina*, 1200 m s. m., 10. 8. 1985, V. D. BOOM 3249.

***Sphinctrina leucopoda* NYL.**

It was previously recorded from Portugal (Algarve) by BOOM & GIRALT (1996).

Portugal: Algarve, Serra de Monchique, 1 km N of Caldas de Monchique, on *Pertusaria* spec. on *Ceratonia siliqua*, 250 m s. m., 18. 7. 1983, V. D. BOOM 911. Beira-Alta, Serra da Estrela, NE of Manteigas, Corredor de Mouros, path to top, on *Lecanora orosthea* (ACH.) ACH. on NE exposed schistose outcrops on slope, 1225 m s. m., 26. 7. 1997, V. D. BOOM 19135. Tras-os-Montes, Serra do Gerês, N of Paradela, Outeiro, *Quercus* forest, on *Quercus*, on *Pertusaria* spec., 750 m s. m., 27. 7. 1999, V. D. BOOM 23368.

****Sphinctrina tubiformis* A. MASSAL.**

It was recorded by SAMPAIO (1970) from Pontevedra (Spain) but not from continental Portugal. In HAFELLNER (1995) it is recorded from Azores and Madeira.

Portugal: Extremadura, 25 km of Setubal, Aldeia do Meio, 200 m from the beach, on *Pertusaria* spec. on *Ficus carica*, 12. 8. 1987, V. D. BOOM 6639a; - - 14. 8. 1987, V. D. BOOM 7126a.

***Sphinctrina turbinata* (PERS.: FR.) DE NOT.**

It was recorded by SAMPAIO (1970) from Vizeu and recently from Sierra dos Candeeiros by BOOM & GIRALT (1999).

Portugal: Tras-os-Montes, SE of Torre de Moncorvo, near Maçores, *Castanea* orchard, on *Castanea*, on *Pertusaria pertusa*, 750 m s. m., 14. 7. 1999, V. D. BOOM 22849; - Montesinho, Serra da Coroa, near Tuizelo, *Castanea* on slope, on *Castanea*, on *Pertusaria*, 800 m s. m., 28. 7. 1999, V. D. BOOM 23460.

****Stigmidium congestum* (KÖRBER) TRIEBEL**

This species is parasitic in the hymenia of *Lecanora argentata* (ACH.) MALME and related species.

Portugal: Tras-os-Montes, NW of Bragança, Zeive, on *Lecanora* spec. on *Castanea* on N slope in meadow, 900 m s. m., 8. 8. 1997, V. D. BOOM 19348.

***Toninia plumbina* (ANZI) HAFELLNER & TIMDAL**

It was recorded by BOOM & GIRALT (1999) also from Portugal.

Portugal: Tras-os-Montes, Montesinho, NW of Vinhais, near Zido, *Castanea* orchard, on *Castanea*, on *Degelia plumbea* (LIGHTF.) P. M. JØRG. & P. JAMES, 750 m s. m., 28. 7. 1999, V. D. BOOM 23424.

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***Tremella lobariacearum* DIEDERICH & M. S. CHRIST.**

DIEDERICH (1996) cites European records of this species from France and Macaronesia and there are no additions in ETAYO & DIEDERICH (1996), so it seems to be new for Portugal.

Portugal: Tras-os-Montes, Serra do Gerês, W of Cabril, Pincães, *Quercus robur* forest, on *Quercus*, on *Lobaria pulmonaria*, 450 m s. m., 24. 7. 1999, V. D. BOOM 23192.

***Trichonectria* aff. *rubefaciens* (ELLIS & EVERH.) DIEDERICH & SCHROERS**

Although LOWEN (1995) recorded *T. rubefaciens* on *Parmelia sulcata*, our sample on the soralia of this host species differs in several features as smaller spores and different hairs.

Portugal: Tras-os-Montes, Serra da Gerês, near Pitões das Júnias, *Quercus* forest, on *Quercus*, on *Parmelia sulcata*, 1000 m s. m., 27. 7. 1999, V. D. BOOM 23015.

***Vouauxiella lichenicola* (LINDS.) PETR. & SYDOW**

This is the first record from continental Portugal. Before it was reported from Madeira by KALB & HAFELLNER (1992).

Portugal: Tras-os-Montes, NW of Bragança, Zeive, on *Lecanora* spec. on *Castanea* on N slope in meadow, 900 m s. m., 8. 8. 1997, V. D. BOOM 19348, 19354. Ribatejo, 7 km of Tomar, road to Olalhas, Pelinos, campsite, on *Lecanora chlarotera* NYL., on *Olea*, 100 m s. m., 4. 8. 1997, V. D. BOOM 19587; Serra do Gerês, Paradela, centre, on *Lecanora* cf. *carpinea* on *Prunus*, 750 m s. m., 26. 7. 1999, V. D. BOOM 23350a.

***Zwackhiomyces* spec. nova**

Only a few perithecia were collected of this new species, so we have to wait to describe it until more material is available.

Portugal: Alentejo, SSW of Évora, road Alvito to Odivelas (N257), 1.2 km W from crossing to Barragem, on *Physconia* spec. on *Quercus ilex*, 100 m s. m., 12. 7. 1995, V. D. BOOM 17051.

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