

New and interesting species to the Ligurian Lichen Flora

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Specie nuove ed interessanti per la flora lichenica ligure — Vengono segnalate 27 specie di licheni da diverse località della Liguria (N Italia). Di queste, 13 non erano state ancora segnalate per la regione. Molte delle nuove segnalazioni riguardano specie a gravitazione oceanica o suboceanica. Questi elementi sono quantitativamente importanti nella flora lichenica ligure, raggiungendo circa il 20% del totale. L'indagine accurata di alcuni habitat ad alta naturalità ha portato al ritrovamento di alcuni *taxa* estremamente interessanti, quali ad esempio *Physcia tribacoides*, *Cetrelia olivetorum* e *Nephroma parile*. Altre segnalazioni riguardano, invece, specie a gravitazione subcontinentale, quale *Parmelia subargentifera*, ritrovate in stazioni delle vallate interne liguri precedentemente poco indagate dal punto di vista lichenologico.

Key words: flora, lichens, Liguria, N Italy.

According to NIMIS (1999) the Ligurian lichen flora consists of 778 species. Most of these were recorded between the half of the 19th century and 1956. During this period many important lichenologists, such as DE NOTARIS (1846), BAGLIETTO (1857, 1861a, 1861b 1862a, 1862b) and SBARBARO (1930, 1931, 1932, 1941, 1955, 1956), collected lichens in various places in Liguria, above all along the coastal belt, whereas only a few specimens from the hinterland were reported (VALCUVIA & VITTADINI, 1982). Since Sbarbaro's death, only a few floristic studies have been carried out in the region: a short list of species observed in the Agoraie Natural Reserve was published by MODENESI (1980), followed by a contribution to the Ligurian lichen flora by NIMIS & TRETACH (1993) and a list of lichens from the Vara Valley by PUTORTÌ et al. (1997). Furthermore, NIMIS et al. (1990), CASTELLO et al. (1994), GIORDANI (1997) and BRUNIALTI (1998) listed a few epiphytic lichens collected during biomonitoring studies. More recently, 27 new species were collected in the Aveto Natural Park, during the yearly excursion of the Società Lichenologica Italiana (BRUNIALTI et al., 1999).

In this paper, some new and interesting species of Ligurian lichen flora are reported. Some specimens were collected by PORCELLA (1990) at Punta Manara, near Sestri Levante (Genova). They were found during the rearrangement of some lichenological collections of the *Herbarium Universitatis Genuensis*

(GE) (GIORDANI & BRUNIALTI, 1998). Other species were collected by the authors during excursions in the Ligurian hinterland.

MATERIALS AND METHODS

During the excursions lichen samples were collected above all on trees. All the samples are preserved in the *Herbarium Universitatis Genuensis* (GE). For the identification of the species were followed the keys by NIMIS (1987) and CLAUZADE & ROUX (1985). Author's abbreviations are according to BRUMMITT & POWELL (1992). Nomenclature follows NIMIS (1993). The places of sampling are described afterwards and reported in fig.1. The *taxa* not previously reported for Liguria are marked by *.

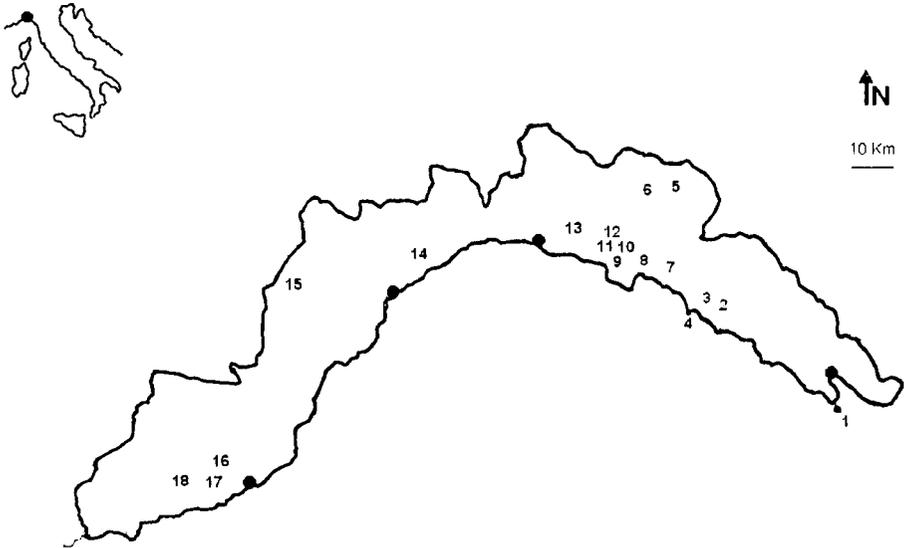


Fig. 1 – Localization of the places of sampling.

DESCRIPTION OF THE PLACES OF SAMPLING

- 1: Isola del Tino (Province of La Spezia), *Quercus ilex*, 10 m, 19.5.1996, leg. R. Canepa, E. Zappa.
- 2: M. Rusparola, Petronio valley (Province of Genoa), soil, 700 m, 11.5.1997, leg. R. Bernardello.
- 3: Monte Tregin, Petronio valley (Province of Genoa), *Castanea sativa*, soil, 600 m, 24.7.1999, leg. P. Giordani.
- 4: Punta Manara (Province of Genoa), *Olea europaea*, *Quercus pubescens*, sandstone, 100 m, 6.7.1991, leg. G. Porcella.

- 5: Vico Soprano, Val d'Aveto (Province of Genoa), *Quercus cerris*, *Castanea sativa*, 1050 m, 14.7.1999, leg. G. Brunialti, P. Giordani.
- 6: Fontanigorda, Val Trebbia (Province of Genoa), *Castanea sativa*, *Tilia sp.*, 900 m, 1.7.1999, leg. G. Brunialti, P. Giordani.
- 7: Maggi, Val Fontanabuona (Province of Genoa), *Tilia sp.*, 40 m; *Castanea sativa*, 200 m, 24.6.1999, leg. G. Brunialti, P. Giordani.
- 8: Montallegro, Rapallo (Province of Genoa), *Quercus ilex*, *Castanea sativa*, 650 m, 1.6.1999, leg. G. Brunialti, P. Giordani, D. Isocrono.
- 9: Bana, Camogli (Province of Genoa), *Olea europaea*, calcareous rocks, 200 m, 29.5.1999, leg. G. Brunialti, P. Giordani.
- 10: Serra, Val Fontanabuona (Province of Genoa), *Olea europaea*, 300 m, 14.6.1999, leg. G. Brunialti, P. Giordani.
- 11: Liteggia, Val Fontanabuona (Province of Genoa), *Castanea sativa*, mosses, 200 m, 30.9.1999, leg. G. Brunialti, P. Giordani.
- 12: Gattorna, Val Fontanabuona (Province of Genoa), *Tilia sp.*, 200 m, 14.6.1999, leg. G. Brunialti, P. Giordani.
- 13: Traso, Val Bisagno (Province of Genoa), *Castanea sativa*, 550 m, 10.1.2000, leg. P. Giordani.
- 14: Eremo del Deserto, Varazze (Province of Savona), *Liquidambar sp.*, 300 m, 11.6.1999, leg. G. Brunialti, P. Giordani.
- 15: Murialdo, Val Bormida, (Province of Savona), *Tilia sp.*, ophiolitic stones, 520 m, 24.5.1999, leg. G. Brunialti, P. Giordani.
- 16: Caravonica (IM), *Olea europaea*, 350 m, 17.12.1999, leg. G. Brunialti, P. Giordani.
- 17: Pantasina, Madonna della Guardia (IM), *Quercus pubescens*, 486 m, 19.9.1999, leg. G. Brunialti, P. Giordani.
- 18: Badalucco, Valle Argentina (IM), *Castanea sativa*, 400 m, 24.11.1999, leg. G. Brunialti, P. Giordani.

List of new and interesting records

* **Bactrospora dryina** (Ach.) A. Massal. (4)

It grows on the acid bark of ancient trees, especially on oaks. Apparently the species was much more frequent in the past and is rapidly becoming less common throughout its range (NIMIS, 1993). The finding at Punta Manara is the first in Liguria (PORCELLA, 1990).

Cetrelia olivetorum (Nyl.) W. L. Culb. and C. F. Culb. (6)

This is the second Ligurian record for this *Lobarion* species: it was formerly collected in the Vara valley (PUTORRÌ et al., 1997). The new specimen was found near Fontanigorda, in the Trebbia valley, in a undisturbed old chestnut wood, where it is extremely rare.

* **Cladonia bellidiflora** (Ach.) Schaer. (4)

This Arctic-Alpine species grows on acid soil and mossy rocks in rather wind-protected and humid situations (NIMIS, 1993). In Italy it has an extensive range but is nonetheless fairly rare. This finding by PORCELLA (1990) in Rocche di S. Anna, in a humid valley near the sea, is rather unusual. This is the southernmost Italian record and the first in Liguria.

* **Cladonia coniocraea** auct. (Flörke) Spreng. (4)

It is found on decaying wood, sometimes also on bark. This species is very closely related to *C. ochrochlora*, and earlier authors sometimes used this name for *C. coniocraea* as well (NIMIS, 1993). This is probably the reason why this common species has not been reported yet in Liguria.

* **Collema undulatum** Flot. (1, 4)

In Italy this species usually occurs from the sub-Mediterranean to the Alpine belt, however, these new additions to the Ligurian flora are from eu-Mediterranean areas (Tino island, Punta Manara).

Degelia plumbea (Lightf.) M. Jörg. and P. James (5, 6, 16, 18)

According to earlier authors (SBARBARO, 1931), it was fairly common in the past in the mature Ligurian woods. Unfortunately, this typical element of *Lobarion* communities now seems to be less common than in the past (NIMIS, 1993; GIORDANI & BRUNIALTI, 1998). However some new records on *Castanea sativa* in the Trebbia valley and in the province of Imperia on old olive trees in very humid situations have been reported.

Dermatocarpon moulinsii (Mont.) Zahlbr. (15)

This typically silicicolous species is rather rare in Italy (NIMIS, 1993). Its presence in Liguria was suggested by POELT (unpublished), who collected specimens of *D. moulinsii* in the Maritime Alps (NIMIS, 1993). This species is characteristic of the oroboreal belt of the Alps, but the new finding was in the Bormida valley, at a lower altitude.

* **Lecanora strobilina** (Sprengel) Kieff. (4, 9, 10)

In Europe it is known in the southern and western parts of the continent, and it probably has a sub-oceanic distribution. It occurs on acid bark, and is rapidly disappearing, at least from the northern part of its European range (NIMIS, 1993). This species seems to be fairly common in Liguria, especially on *Olea europaea*.

Lobaria amplissima (Scop.) Forssell (6)

This species is the most photophytic *Lobaria* of the Italian flora, being more frequent on isolated old deciduous trees (NIMIS, 1993). Because of its sensitivity to forest management and air pollution, it has become far less common. There have been some new findings in the Trebbia valley.

Lobaria scrobiculata (Scop.) DC. (6)

The distribution of this species in Liguria seems to be limited to suboceanic areas of the Ligurian Appennines, where it has been reported in the Aveto valley (BRUNIALTI et al., 1999). Some of the past findings (SBARBARO, 1956) have been not confirmed recently.

Nephroma parile (Ach.) Ach. (6)

This rare species occurs in *Lobarion* communities on bark and epiphytic mosses in humid forests, mostly in upland areas (NIMIS, 1993). In Liguria, it was formerly found only in the Aveto valley (BRUNIALTI et al., 1999). The new report is from Fontanigorda (Trebbia valley), where it is rather rarely found on old *Castanea* trees.

* **Ochrolechia crozalsiana** Clauzade and Vezda (4)

According to NIMIS (1993), this *taxon* appears to be distinct from *O. tartarea*. It seems to have a Tyrrhenian distribution in Italy, but it was formerly reported from Tuscany (NIMIS & TRETACH, 1993), Sardinia (NIMIS & POELT, 1987) and Calabria (PUNTILLO, 1996). This specimen from Punta Manara is the northernmost Italian record and the first in Liguria.

Parmelia horrescens Taylor (8, 9, 14)

This very rare species is morphologically very close to *P. tiliacea*. It occurs on acid or sub-neutral bark of very old trees in old forests. The record by SBARBARO (1932) from the Eremo del Deserto, near Varazze (Province of Savona) has been confirmed.

* **Parmelia subargentifera** Nyl. (15)

Little is known about the Italian distribution of this epiphytic species (NIMIS, 1993). It is more frequent on bark of isolated deciduous trees, in sites with a rather continental climate. The sample from the Bormida valley is the first record for Liguria.

* **Parmelia tinctina** Maheu and A. Gillet (4)

This silicicolous species is very similar to *P. conspersa* and is common in the Mediterranean Italy on more or less horizontal rocks. The first record for Liguria is from Punta Manara, where it is fairly common on sandstone.

Parmeliella triptophylla (Ach.) Müll. Arg. (6, 13, 17)

Some new records of this rare *Lobarion* species have been reported. *P. triptophylla* was formerly found in the Aveto valley (BRUNIALTI et al., 1999). Its distribution in Liguria is probably limited to very humid stations in undisturbed habitats.

Parmotrema crinitum (Ach.) M. Choisy (2, 3, 7, 11)

In Italy this suboceanic species seems to be confined to the north, in the pre-Alpine chains with a humid climate and in the Ligurian and Tuscan Appennines (NIMIS, 1993). Little is known of the distribution of this species in Liguria. PORCELLA (1990) mentioned *P. crinitum* at Punta Manara and BAGLIETTO (1857) reported it in the hinterlands of Chiavari and Voltri. We found *P. crinitum* in some new stations in the Fontanabuona and Petronio valleys on epilithic mosses and epiphytic on old chestnut trees.

Parmotrema stuppeum (Taylor) Håle (4, 9)

A pan-temperate species which has a mainly western distribution in Europe. It has apparently disappeared from most of central Europe due to air pollution (NIMIS, 1993). In Italy it is rare, perhaps decreasing, and is limited to the Tyrrhenian side of the Peninsula (COASSINI LOKAR et al., 1987). Its presence in Liguria is perhaps underestimated.

Phaeophyscia chloantha (Ach.) Moberg (4, 9)

In Italy, this species has an extensive range particularly in areas with submediterranean vegetation but is nonetheless not common (NIMIS, 1993). From Liguria, this species was formerly reported by BAGLIETTO (1857).

Phaeophyscia endophoenicea (Harm.) Moberg (9)

A mainly southern to central European lichen. This species usually occurs on bark in moderately shaded situations (NIMIS, 1993). This is the second record for Liguria, since it had already been mentioned by BRUNIALTI et al. (1999) in the Aveto valley.

* **Phaeophyscia nigricans** (Flörke) Moberg (6)

It is usually found on the eutrophic bark of trees in nutrient-rich situations. The previous Italian records are from the Alps and the northern Appennines (NIMIS, 1993). The sample from the Trebbia valley is the first for the Ligurian flora.

* **Phaeophyscia pusilloides** (Zahlbr.) Essl. (12)

This species seems to have a submediterranean-suboceanic distribution in Europe. It is found on nutrient-rich bark on isolated trees in humid areas, mostly below the montane belt (NIMIS, 1993). *P. pusilloides* is new to Ligurian lichen flora.

Physcia biziana v. **leptophylla** Vezda (1)

This species is most frequent in Mediterranean areas, both on bark and rocks (NIMIS, 1993). The variety *leptophylla* has been described in Liguria (Vezda, Lich. Sel. Exs., 298) and this is the second report for the region.

Physcia dubia (Hoffm.) Lettau (9, 15)

This species is very variable and may include several distinct *taxa*. In the past it has been certainly confused with other species; in Italy it is not as rare as the few records might suggest (NIMIS, 1993). According to NIMIS (1993), the distinction between the varieties *dubia* and *teretiuscula* is not certain. These samples are the second record for Liguria after BRUNIALTI et al. (1999), who collected *P. dubia* in the Aveto valley.

* **Physcia tribacoides** Nyl. (7)

This record from the Fontanabuona valley is the first for Liguria and the northernmost for Italy. In Italy it is certainly limited to the Tyrrhenian region and it was formerly reported from Tuscany (LOPPI & PUTORTI, 1995; LOPPI et al. 1994, 1995) and Latium (NIMIS, 1987; NIMIS, 1988). *Physcia tribacoides* lives on isolated, mostly old trees, generally near the coast but not in maritime situations. According to NIMIS (1993); the report of '*Physcia controversa mihi ad int.*' from Liguria, by SBARBARO (1955) might refer to this species.

* **Rhizocarpon geminatum** Körb. (15)

The Italian distribution of this rather rare species is centred in the Alps. It grows on steeply inclined faces of more or less base-rich or slightly calciferous siliceous rocks; it is a chemically heterogeneous species, probably less thermophytic than the closely related *R. disporum* NIMIS (1993). The record of the Bormida valley is the first in Liguria.

* **Rhizocarpon epispilum** (Nyl.) Zahlbr. (4)

This Mediterranean species is an obligate parasite on different species of saxicolous *Pertusaria*. According to NIMIS (1993) this *taxon* is probably more widespread, but very much overlooked, throughout central and southern Italy. This species was formerly known only from Sardinia and the Marche region (NIMIS & TRETACH, 1999). The samples collected at Punta Manara on *Pertusaria rupicola* are new to Liguria (PORCELLA, 1990).

DISCUSSION

According to NIMIS & TRETACH (1999), Liguria is the Tyrrhenian region which accounts the lower percent (22.1%) of suboceanic and oceanic species of the whole lichen flora. However, thanks to a more careful investigation of some interesting Ligurian habitats, such as mature chestnut woods and old olive groves, 13 interesting suboceanic and oceanic species, 4 of which (*Bactrospora dryina*, *Lecanora strobilina*, *Ochrolechia crozalsiana*, *Physcia tribacoides*) new to the Ligurian lichen flora, have been reported.

Other species are reported from the hinterland and continental valleys of the Ligurian Appennines, where very few investigations were carried out by the earlier authors. In general, many species mentioned as common at the beginning of the century are currently rather rare and rapidly disappearing because of the increasing atmospheric pollution (NIMIS, 1993) and, above all, of the destruction of their optimal habitats. On the other hand, the regional distribution of some other *taxon* is poorly known and is perhaps underestimated. Thus, twenty years after the former Ligurian lichen check-list (VALCUVIA & VITADINI, 1982) an update of the regional lichenological knowledge is necessary.

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Summary

27 species from various places in the Liguria region (Northern Italy) are reported. 13 of these are new to the region.