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FIVE LICHENS NEW TO FRIULI (NE ITALY)

CINQUE LICHENI NUOVI PER IL FRIULI (NE ITALIA)

Abstract - Five lichens (*Cladonia sulphurina*, *Cladonia uncialis* subsp. *biuncialis*, *Peltigera monticola*, *Pertusaria ophthalmiza* and *Squamarina periculosa*) are reported as new to the Region of Friuli (NE Italy). One of them (*Cladonia uncialis* subsp. *biuncialis*) is new to Italy as well. A description of each species and some notes on ecology and distribution in Italy are provided.

Key words: Flora, Lichenised fungi.

Riassunto breve - *Cinque specie licheniche* (*Cladonia sulphurina*, *Cladonia uncialis* subsp. *biuncialis*, *Peltigera monticola*, *Pertusaria ophthalmiza* e *Squamarina periculosa*) sono riportate come nuove per il Friuli. Una di esse (*Cladonia uncialis* subsp. *biuncialis*) è anche nuova per l'Italia. Per ogni specie si danno una descrizione ed alcune note su ecologia e distribuzione in Italia.

Parole chiave: Flora, Funghi lichenizzati.

Introduction

The lichen flora of Friuli presently consists of 912 infrageneric taxa (NIMIS & MARTELLOS, 2003), but its knowledge is still far from being complete. The two closest regions, Veneto and Trentino Alto Adige, have 1.012 and 1.344 infrageneric taxa, respectively. Several parts of Friuli, such as the Carnic Alps and part of the Friulan Plain, still await a thorough exploration. Complete lists of taxa are available only for a few areas, such as the Lumiei valley (NIMIS, 1981) and the high Torre Valley (CASTELLO et al., 1989; TRETACH & CASTELLO, 1993). This paper reports five species as new to Friuli, as a further contribution to the knowledge of the lichen flora of this region.

Material and methods

All the cited samples are preserved in the Herbarium Universitatis Tergestinae (TSB). For each species a description, notes on its ecology and distribution in Italy (NIMIS, 1993; NIMIS, 2003), locality, altitude, substratum and date of collection, collector name and herbarium number are given. Nomenclature follows NIMIS & MARTELLOS (2003).

The taxa

Cladonia sulphurina (Michx.) Fr.

- Carnic Alps, Casera Razzo (UD), on *Larix decidua*, 1750 m, 19.09.1985, leg. P.L. Nimis (TSB 6486);
- Julian Alps, M.te Florianca (UD), on *Picea abies*, 1590 m, 27.07.1991, leg. M. Tretiach (TSB 15245).

Thallus fruticose, yellowish green, K-, C-, KC+ yellowish, P-, UV+ white or UV-. Primary thallus squamulose, the squamules rather large, 2-8 mm long and 2.5 to 4 mm broad, yellowish green above, white to brownish below. Podetia elongate, 2-8 cm tall, corticate only at base, mostly without cups, and then with pointed ends, sometimes with narrow, lacerated cups, farinose-sorediate. Apothecia scarlet red. Asci *Porpidia*-type. Spores 1-celled, hyaline, ellipsoid, 8 per ascus. Pycnidia scarlet red, semi-immersed. Spermatia cylindrical. Photobiont chlorococcoid. With usnic and squamatic acids.

This species has been separated from *C. deformis* by chemical and morphological characters. The latter contains zeorin and never squamatic acid. Moreover, *C. sulphurina* has podetia usually without cups, or, rarely, with narrow and lacerated cups, while *C. deformis* has podetia often with more or less regular cups with even margins. WIRTH (1987) claims that, at least for central European material, the correlation between chemistry and morphology is not very clear, whereas, according to other authors, the two species are well distinguished (NIMIS, 1993).

C. sulphurina is a circumboreal-subarctic lichen, and grows on organic substrata in cold situations and on rotting wood, e.g. on stumps and decaying fallen trunks. *C. sulphurina* is much less frequent than *C. deformis* in central Europe, where it is confined to colder sites (WIRTH, 1987). In Italy it was previously reported from Trentino Alto Adige, Veneto and Valle d'Aosta, but it is certainly more widespread in the Alps.

Cladonia uncialis (L.) F. H. Wigg. subsp. *biuncialis* (Hoffm.) M. Choisy

- Carnic Alps, Giogaia dei Fleons, Forni Avoltri (UD), 2300 m, 17.08.1996, leg. M. Tretiach, det. S. Martellos (TSB 24595);
- Carnic Alps, Giogaia dei Fleons, Forni Avoltri (UD), 1950 m, 22.10.1995, leg. M. Tretiach, det. S. Martellos (TSB 25117).

Thallus fruticose, pale yellowish, often with brownish tips, shrubby, K-, C-, KC+ yellow, P-, UV+ white. Primary thallus squamulose, ephemeral and rarely seen, the squamules to 1 mm long, white below. Podetia mainly dichotomously ramified, non squamulose, to 6 (-10) cm tall, with pointed apices and divergent branches, the axils mostly perforate, forming compact tufts. Apothecia extremely rare, brown, convex. Spores 1-celled, hyaline, ellipsoid, 8 per ascus. Pycnidia dark, semi-immersed, apical; pycnidial jelly reddish. Spermatia cylindrical. Photobiont chlorococcoid. With usnic and squamatic acid.

C. uncialis subsp. *biuncialis* is divided from *C. uncialis* subsp. *uncialis* by the presence

of squamatic acid. The morphologic differences of the two taxa are still not completely clear (KÄRENLAMP, 1964; AHTI, 1977; HUOVINEN & AHTI, 1986), and will be discussed by the author in a forthcoming paper, as well as their distribution in Italy.

This taxon grows on soil and among mosses, mostly near or above treeline. This is the first record from Italy.

Peltigera monticola Vitik.

- Carnic Alps, Fusine lakes (UD), on soil, 750 m, 14.06.2003, leg. S. Martellos (TSB 36275).

Thallus foliose, grey-brownish, with upturned, curled and somewhat phyllidiate margins, tomentose near margin, somewhat scabrid towards centre, loosely attached, K-, C-, KC-, P-, UV-. Lobes flattened to concave, contiguous, with rounded ends, ca. 5 mm broad. Lower surface pale, with diffuse veins which are pale towards margin, darker in the centre, and, short, subsimple rhizines near margin, which become dark and tufted in the centre. Upper cortex paraplectenchymatous. Lower cortex absent. Apothecia frequent, saddle-shaped, terminal, brown. Paraphyses simple, distinctly thickened above. Asci *Peltigera*-type, fissitunicate, the thickened apex with a K/J+ blue ring. Spores 4-celled, hyaline, acicular, thin-walled, 8 per ascus, 39-52 x 3.9-5.2 µm. Pycnidia dark, immersed. Spermatia fusiform. Photobiont cyanobacterial (*Nostoc*). Without lichen substances.

P. monticola is a recently described and rarely collected taxon. It is closely related to *P. ponojensis*, which has rhizines and veins long remaining pale, and *P. rufescens*, which has conspicuously and richly branched rhizines, also at the margin of the lobes.

It grows on mosses and on calcareous soil in Fagus forests and in subalpine rocky meadows. It is known for the Alps from Switzerland over to Montenegro in the Balkan Peninsula, Romania and Greece (VITIKAINEN, 1994). It was previously known in Italy from Sardegna and Veneto.

Pertusaria ophthalmiza (Nyl.) Nyl.

- Carnic Alps, Fusine lakes (UD), on coniferous bark, 750 m, 14.06.2003, leg. S. Martellos (TSB 36274).

Thallus smooth to very uneven-warted; soralia 0.5-1.2 mm diam., with a more or less raised, irregular, tumid, segmented-crenulate margin, sparingly sorediate and torn on the inner side. Thallus and soredia P-, K-, KC-, C-, UV-. Apothecia 1-2, sunken in soralia; disk partially obscured, more or less greyish pruinose; epithecium K- or faintly purplish. Asci 1-spored. Ascospores (90-) 130-150 (-170) x 50-70 µm, ellipsoid or longly ellipsoid, wall 6-7 µm thick.

This species is closely related to *P. multipuncta*, *P. amara* and *P. albescens*. *P. multipuncta* and *P. amara* have a different chemistry, the first having K+ and KC+ yellow thallus and the second having KC+ violet soralia. *P. albescens* have the same chemistry of *P. ophthalmiza*, but is nearly always sterile (as *P. amara*) and, if fertile, it has often 2 spores per ascus.

P. ophthalmiza is cool-temperate to S boreal lichen, with optimum on bark of conifers, in humid-cold situations. In Italy it was previously reported only from Trentino Alto Adige, but is certainly more widespread in the Alps.

Squamarina periculosa (Schaer.) Poelt

- Carnic Alps, T. Palar Valley, Alesso (UD), in a fissure between calcareous rocks, 200 m, 10.10.1993, leg. M. Tretiach (TSB 18144).

Thallus squamulose to subcrustose, greenish white, paler at margin, thick, often forming rosettes, with radiating marginal lobes, K-, C-, KC+ yellowish, P-, UV-. Medulla P- or P+ yellow. Squamules (2-) 3-6 mm broad, elongate, concave, closely adpressed to the substratum, with a usually up-turned margin covered by knotty, simple isidia-like outgrowths. Upper cortex paraplectenchymatous, well delimited against the thick medulla. Apothecia rare, lecanorine, sessile, strongly constricted, up to 4 mm diam. Disc smooth, pale brown to greenish-brown, margin thick, smooth. Paraphyses slightly thickened above. Epithecium brownish, hymenium (J+ blue) and hypothecium colourless. Asci clavate, the wall J+ blue, with a J+ blue apical dome, without axial mass. Spores 1-celled, hyaline, ellipsoid, thin-walled, 8 per ascus, 10-15 x 4-6 µm. Pycnidia dark, immersed. Spermatia filiform. Photobiont chlorococcoid. With usnic and variable amounts of psoromic acids.

S. periculosa grows in fissures of calcareous rocks, often in rather shaded, north-facing surfaces. Its distribution appears to be confined to the Mediterranean region, extending as far north as the southern pre-Alps. In Italy it was previously reported from Venezia Giulia, Trentino Alto Adige, Lombardia, Piemonte, Liguria, Sardegna and Calabria. It is very rare, but certainly more widespread in the Peninsula.

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