Micarea subcinerea, an additional species of the lichen flora from Western Europe

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Received 25. 6. 2004, in revised version 15. 8. 2004

Key words: Lichens, *Micarea*, *Micarea subcinerea*, spec. nova. – New species, terricolous. – Lichen flora of The Netherlands, Germany.

Summary: The lichen *Micarea subcinerea* spec. nova is described from terricolous habitats in The Netherlands and northwestern Germany. The similarities with the related species *Micarea cinerea* and *M. peliocarpa* are discussed.

Zusammenfassung: *Micarea subcinerea* spec. nova, eine erdbewohnende Flechte, wird aus den Niederlanden und Deutschland neu beschrieben. Ihre Unterscheidung von *Micarea cinerea* und *M. peliocarpa* wird umrissen.

According to the Dutch checklist (APTROOT & al. 1999), eighteen species of the genus *Micarea* are known from the The Netherlands. One additional species, *Micarea viridileprosa* COPPINS & van den BOOM, has recently been described by BOOM & COPPINS (2001). The *Micarea prasina* FR. complex has been splitted up in two more species, *M. micrococca* (KÖRBER) GAMS ex COPPINS and *M. subviridescens* (NYL.) HEDL. (COPPINS 2002), occurring also in The Netherlands. In the present study, we describe a further *Micarea* species as new. Notes on ecology are provided and some features are discussed for distinguishing the new species of the related *Micarea cinerea* (SCHAER.) HEDL. and *M. peliocarpa* (ANZI) COPPINS & R. SANT. *Micarea cinerea* should be deleted from the Dutch checklist.

Micarea subcinerea BRAND & VAN DEN BOOM, spec. nova (Fig. 1)

Diagnosis latina:
Habitu similis *M. cinerea*, sed differt apotheciis minoribus (0,2-0,35 mm); ascosporis brevioribus, 12-18 x 3,2-5,7 µm, 3-septatis; macropycnidiis 0,15-0,35(-0,4) mm, macroconidiis brevioribus, 65-100 µm longis, 1,2-1,7 µm latis, 2-3-septatis; micropycnidiis 50-80 µm diam., microconidiis (5-)5,5-7,5(-8) x 0,8-1 µm.

Type: The Netherlands: Prov. Noord-Holland, SE of Den Helder, Wieringen, Westland, 0.1 km W of church, thatched roof, on south-exposed reed, 4°55.3'E-52°53.4'N, 27. 7. 2000, M. BRAND 41379 (L, holotypus; herbarium V. D. BOOM & BRAND, isotypi).

Characters:

Thallus effuse, up to 4 cm wide, ± scattered warted areolate, warts convex to hemispherical, sometimes with a flattened top, varying from crowded to discontiguous, bullate-like. Upper surface smooth, mat, whitish grey, yellowish grey to pale brownish grey. Areolae in section ecorticate, with hyaline unoriented hyphae, c. 0.1-0.4 mm in diam. Phycobiont micareoid, cells 5-7 µm in diam. Apothecia rarely present, adnate, often less developed, 0.2-0.35 mm in diam., or up to 0.7 mm when tuberculate, slightly convex, immarginate, beige brownish, pallid blue-grey to black, sometimes piebald, margin sometimes paler. Epihymenium blue-grey to brownish grey, spotted, granular-incrusted, K+ pale greenish, N-. Hymenium 45-60 µm high, with granular crystals, sometimes also dispersed throughout the apothecium (gyrophoric acid, C+ red). Hypothecium hyaline, 40-70 µm high, containing unoriented hyphae or weakly developed paraplectenchymatous cells of 2-4 µm diam. Paraphyses micareoid, thin, strongly branched, twisted in K. Asci clavate, sometimes abundantly, often without ascospores, c. 30-37 x 12-15 µm. Parathecium small, mainly developed lateral, hyaline, with conglutinated hyphae completely filled with crystals (gyrophoric acid), up to 30 µm wide towards the outer edge. Ascospores mostly rare, sometimes visibly as old overmature, 12-18 x 3.2-5.7 µm, 3-septate, often slightly curved. Macropycnidia always abundantly, immersed in bigger thallus warts, with or without blue-grey pigmented ostiole, K-, N-, 0.15-0.35(-0.4) mm. Macroconidia nearly straight to weakly curved, 65-100 x 1.2-1.7 µm, (0-)2-3(-5)-septate. Micropycnidia ± sessile, dark brown, with a dark olive-blue pigmented ostiole, 50-80 µm in diam. ostiole gaping, K-, N-, ostiole c. 20-30 µm in diam. in appearance, microconidia bacilliform (5-)5.5-7.5(-8) x 0.8-1 µm.

Chemistry: Thallus K-, P-, C+ red, gyrophoric acid found by TLC.

Ecology and distribution: *Micarea subcinerea* has been found mostly terricolous, growing over plant debris and bryophytes such as *Polytrichum* in stable hilly Corynephoretum communities. It has been found on old thatched roofs, growing on reed where it often is associated with *Cladonia* spec. or with *Cladonia callosa* DELISE ex HARM.; it has rarely been found on acidic stones of megalithic monuments, in association with *Trapelia involuta* (TAYLOR) HERTEL. Some collections are from bark of exposed *Betula* roots in sheltered situations. The only specimen from *Salix* is not real epiphytic but from a fallen branch.

The new species is widely distributed throughout The Netherlands and furthermore only known from one locality in northwestern Germany (Waddensea island Sylt, see Fig. 2).

Notes:

Dutch material of the new species resembles *Micarea cinerea* regarding thallus and pycnidia as well as thallus warts with pycnidia. The Apothecia are larger in *Micarea cinerea* (0.2-0.7 mm), the hymenium is higher (55-70 µm) and most of all the ascospores are larger (23-34 x 4.5-6 µm) and (3-)7-septate. The macroconidia are also different, longer, c. 1 µm wide, 9-17-septate and more clearly curved. *Micarea cinerea* has a mere different ecology, growing epiphythic on more or less acidic bark.

The forma *Micarea cinerea* f. *tenuispora* (D. HAWKSW. & POELT) FRYDAY (basionym: *Hastiferea tenuispora* D. HAWKSW. & POELT) differs in several respects, the thallus is dark green-black to brownish black and the macroconidia are c. 7-septate.

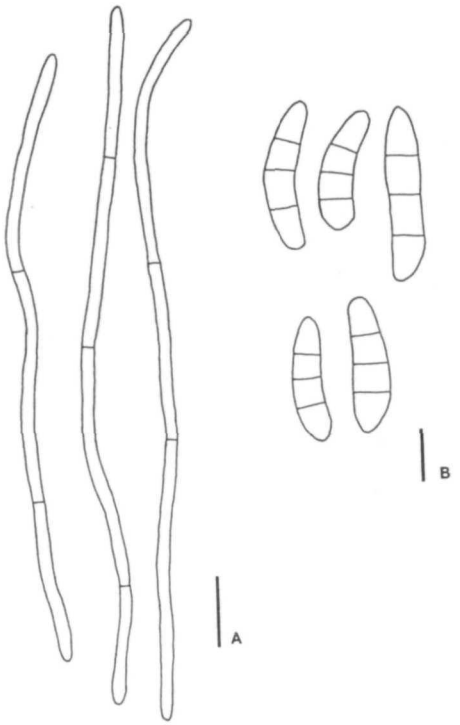

Fig. 1. Ascospores and macroconidia of *Micarea subcinerea* (holotype). Bars: A 10 µm, B 5 µm.

Fig. 2. Known distribution of *Micarea subcinerea*, based on grid squares of 5 x 5 km^2. Large dot, the record from Germany.

It is known mainly from snow-bed vegetation and montane heaths in the British Isles (FRYDAY 2001).

The related species *Micarea peliocarpa* has much shorter macroconidia (21-50 µm), which are curved or sigmoid, in general, the thallus is less coarsely warted and more continuous and in The Netherlands, *M. peliocarpa* is known mostly from bark and rarely from rocks, there is only one record from grass (herbarium BRAND), but it is never recorded terricolous. In contrast, the new species grows mostly terricolous or on thatched roofs, but never epiphytic. Previously *M. peliocarpa* was only known from the northern part of The Netherlands where it is rare. The only specimen of the southern part of The Netherlands is recorded here for the fist time and has been found on a branch of a mature *Quercus robur* tree. All Belgian collections of *Micarea peliocarpa* from BOOM and BRAND have been checked but *M. subcinerea* was not detected.

This new species was formerly included in *Micarea cinerea* and published in BOOM & al. (1994) and COPPINS & BOOM (1995). However, *M. cinerea* which has a boreal to Mediterranean distribution, is not known from The Netherlands and should be deleted from the checklist.

Selected specimens examined: The Netherlands: prov. Drenthe, Hoogeveen, Hullenzand, terricolous in *Calluna* heathland, 11. 7. 1982, M. BRAND 11173, 11174 (hb BRAND); - Anloo, Annen, reed on roof, M. BRAND 27664 (hb BRAND); - Schoonoord, megalithic monument D 49, on granite, 15. 10. 1988, M. BRAND 19747 (hb BRAND); - Exloo, megalithic monument D 31, on granite, 15. 10. 1988, M. BRAND 19672 (hb BRAND); prov. Zuid-Holland, Alblasserwaard, Noordeloos, SW of bridge near church, thatched roof of house, on NW exposed reed, 4°56.5'E-51°54.2'N, 26. 10. 2001, M. BRAND 44062 (hb BRAND); prov. Noord-Brabant, ENE of Heeze, Strabrechtse heide, along stream Peelrijt, *Alnus Betula* forest, on exposed roots of *Betula*, 23. 3. 1991, V. D. BOOM 10949 (hb V. D. BOOM); - Strabrechtse Dijk, edge of *Pinus* forest, along road and field, bank of low facing sand, on exposed roots of *Betula*, 26. 1. 2002, V. D. BOOM 28252 (hb V. D. BOOM); - Lieropse Heide, E of Beuven, damp *Salix* woodland, on fallen *Salix* branch, grid ref. 51.57.24, 22. 2. 2003, V. D. BOOM 30136 (hb V. D. BOOM); - Leende, Groote Heide, Corynephoretum community, hilly area, on N slope among dead grass and litter, 5°31.4'E-51°18.0'N, 24. 9. 2001, V. D. BOOM s.n. & M. BRAND 43842 (hb V. D. BOOM & BRAND); - Valkenswaard, M. BRAND 17724 (hb BRAND).

Germany: Sylt, Rartum Hörnum, heathland, terricolous, 10. 10. 1977, M. BRAND 7188 (hb BRAND).

Selected specimens examined of *Micarea cinerea*: Scotland: Ross & Cromarty, 15 km SSE of Ullapool, Lael Forest Garden, mixed wood, on *Betula*, 26. 7. 1991, V. D. BOOM 11691 (hb V. D. BOOM).

Wales: Gwynedd, Caernavonshire, NW of Beddgelert, open mixed forest, on *Quercus*, 16. 7. 1991, V. D. BOOM 11344 (hb V. D. BOOM); - Gwynedd, 4 km S of Betws-Y-Coed, Fairy Glen, on *Quercus* in gorge, 4. 5. 2000, M. BRAND s.n. (hb BRAND).

Ireland: Kerry, 4 km N of Lisdoonvarna, road to Fanore, on old fence poles along road, along *Picea* forest, 14. 5. 2000, M. BRAND s.n. (hb BRAND).

France: Finistère, 2 km W of Huelgoat, site of former zinc/silver mine, valley surrounded by forest, 25. 4. 1999, M. BRAND s.n. (hb BRAND).

Selected specimen examined of *Micarea peliocarpa*: The Netherlands: Noord-Brabant, E of Heeze, W rim of Strabrechtse Heide, Herbertusbossen, grid. ref. 51.56.35, 8. 2. 2004, V. D. BOOM s.n. (hb V. D. BOOM).

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