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Pyrenocollema halodytes, a new lichen species in Poland

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Two new localities of *Pyrenocollema halodytes* (Nyl.) R. C. Harris are described from Polish Baltic coast, where this taxon grows on anthropogenic habitats.

Key words: *Pyrenocollema halodytes*, marine lichens, distribution.

Pyrenocollema halodytes (Nyl.) R. C. Harris belongs to a small group of marine lichens growing in Poland which Degelius (1939) described as taxa growing exclusively on sea shores. They are dependent on periodic drenching or spraying with salt water or exposure to the marine aerosol. These lichens are almost entirely epilithic and are common on rocky coasts bordering seawaters with a relatively high salinity. Along the Polish shores of the southern Baltic the only natural rocky substrata are boulders and stones washed out of cliff faces; usually quite small size, they are frequently inundated or overturned during the more violent storms. Moreover, halophilous marine lichens do not thrive in the brackish surface waters of the Baltic, the salnity of which ranges from 2 ‰ in the northern part of the Gulf of Bothnia to ca 8 ‰ in the vicinity of Malmö and Rügen (see Łomnicki et al., 1975). It is only in the Danish Straits, which receive a steady influx of water from the North Sea, that the salinity begins to increase; in the Gothenburg area it has already reached 20 ‰. This is clearly reflected in the widespread occurrence of marine lichens there (Degelius, 1986; Alstrup, Søchting, 1989; Litterski, 1993; Santesson, 1993 et al.).

Seven marine lichen species have so far been found on the Polish coast: *Caloplaca marina* (Wedd.) A. Zahlbr., *Pyrenocollema halodytes* (Nyl.) R. C. Harris, *Lecanora salina* H. Magn., *L. heliopsis* Wahlenb., *Verrucaria erichsenii* Zsch.,

V. halizoa Leighton and *V. maura* Wahlenb. Only two of them have been found in recent time; the others were all recorded before the Second World War, the last four at a single locality at Świnoujście (E r i c h s e n, 1933; F a ł t y n o w i c z, 1992). In the absence of natural rocks along the Polish coast, these lichens grow on man-made substrata, cheifly on concrete coastal defences and reinforcements; only *Lecanora helicopis* was once found on a boulder lying on the beach (K r a w i e c, 1938).

P. halodytes is an inconspicuous crustose lichen with a thallus made up of hyaline hyphae, which is olive-brown or blackish in colour, thin, uniform, sometimes cracked and subgelatinous. The thallus can also be a glossy yellow-brown when growing on the surfaces of siliceous rocks or matt brown and rough to the touch when growing in sheltered spots. On the shells of mollusca and barnacles the thallus is often scattered. The photobiont is a cyanobacterium of the genus *Hyella* (S m i t h, 1926; N o w a k, T o b o l e w s k i, 1975; P u r v i s et al., 1992).

Usually numerous the perithecia are very small 0.2-0.25(-0.3) mm, black and embedded in the substratum or protruding slightly from it. The size of the fruiting bodies depends on the type of substratum; on soft calcareous rocks they are usually larger than on rocks devoid of calcium (see P u r v i s et al., 1992). The full open brown-black involucrelum adjoins the excipulum; the latter is 100-200 µm in diameter, spheroidal, usually somewhat oblate at the bottom, and brown or colourless. Paraphyses are few in number, irregular, branched and slender. The round or elongate asci contain bicellular, club-shaped spores, the cells of which are not the same size; their dimensions are 13-24(-27) x 5-8(-10) µm (N o w a k, T o b o l e w s k i, 1975; P u r v i s et al., 1992).

P. halodytes usually grows on a rocky substratum (mostly calcareous), on the shells of molluscs of the genus *Littorina* and those of barnacles of the genus *Balanus*; they are less frequently found on soil and only exceptionally on timber (N o w a k, T o b o l e w s k i, 1975; F a ł t y n o w i c z, 1992; P u r v i s et al., 1992; N i m i s, 1993; S a n t e s s o n, 1993).

P. halodytes is known from a large number of localities on the coasts of Europe and North America; maps of its distribution in Europe have been published by F a ł t y n o w i c z (1992) and L i t t e r s k i (1992) (see also H a r r i s, 1975 and E g a n, 1987).

Localities of *P. halodytes* in Poland have been found in two places on the southern shore of the Baltic (Fig. 1).

1) Lake Kopań sandbar (square Ab-76 on the ATPOL grid – see C i e ś l i ń s k i, F a ł t y n o w i c z, 1993), which is situated in the central part of the coast in Koszalin voivodeship, and extends to the north-east of Darłowo. Specimens of *P. halodytes* grow in some profusion on the wet, timber piles of the breakwater driven into the sea bed at the height of about 0.5 m above the water surface above the wash zone. Partially covered by algae the thalli have a southerly and easterly exposure. Above this, on the drier parts of the piles, *Lecanora umbrina* (Ehrh.) Massal. is abundant. It was not possible to determine the age of the breakwater, but it must be at least 30-40 years old.

2) Gdynia, "Kępa Redłowska" nature reserve (square Ad-70). *P. halodytes* grows in small numbers on the east-facing concrete sea wall at the foot of the cliff (see S ą g i n, 1993). This wall is some 30 years old. *Caloplaca citrina* (Hoffm.) Th. Fr., *Candelariella aurella* (Hoffm.) A. Zahlbr., *Lecania erysibe* (Ach.) Mudd and *Phaeophyscia orbicularis* (Necker) Moberg are present in the immediate vicinity.

Herbarium specimens are at UGDA (UGDA-L-2909 and UGDA-L-4331).

The species could be occurring elsewhere on the Polish coast, but owing to its inconspicuous thallus may well have been overlooked.

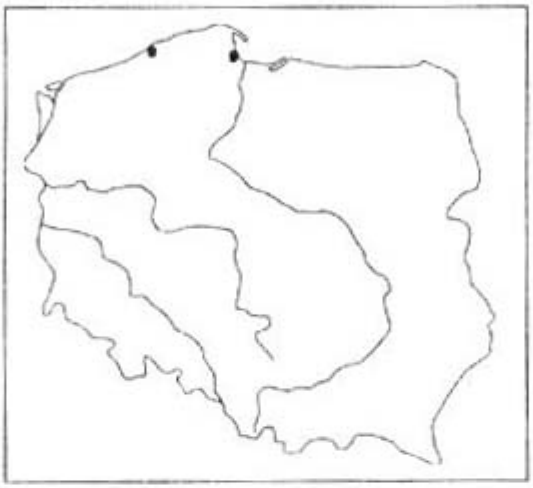

Fig. 1. Distribution of *Pyrenocollema halodytes* (Nyl.) R. C. Harris in Poland

The taxonomic position of *P. halodytes* is uncertain. It has been described under the names: *Arthopyrenia halodytes* (Nyl.) Arnold, *A. orustensis* Erichsen, *A. leptotera* auct., *A. kelpii* Koerber, *Leiophloea halodytes* (Nyl.) Trevisan, *Paraphysothele halodytes* (Nyl.) Keissler and *Pyrenocollema orustense* (Erichsen) A. Fletcher. Some authors include *Pyrenocollema sublitorale* (Leighton) R. C. Harris in this species, whereas P u r v i s et al. (1992) distinguish *Pyrenocollema orustense*, a separate species growing on calcium-free rocks. Finally, S a n t e s s o n (1993) is of the opinion that *P. halodytes* does not belong to the genus *Pyrenocollema* but to another, as yet underscribed genus.

REFERENCES

A l s t r u p V., S ø c h t i n g U., 1989. Checkliste og status over Danmarks lavar. Nordisk Lichenologisk Forening, København, 44 pp.

C i e ś l i ń s k i S., F a ł t y n o w i c z W. (ed.), 1993. Atlas of the geographical distribution of lichens in Poland. 1. Inst. Bot. im. W. Szafera, PAN, Kraków.

D e g e l i u s G., 1939. Die Flechten von Norra Skafon. Uppsala Universität Arsskrift 11: 1-203.

D e g e l i u s G., 1986. The lichen flora of the Island of Anholt, Denmark. Acta R. Soc. scient. litt. Gothoburg. Bot. 3: 1-68.

E g a n R. S., 1987. A fifth checklist of the lichens forming, lichenicolous and allied fungi of the continental United States and Canada. Bryologist 90.2: 77-173.

Harris R. C., 1975. A taxonomic revision of the genus *Arthopyrenia* s. lat. in North America. (Mscr.).
Krawiec F., 1938. Flora epilityczna głazów narzutowych zachodniej Polski. Prace Komisji Mat.-Przyr. PTPN, B 9.2: 1-254.
Litterski B., 1992. Verbreitung einiger Flechtenarten in Europa. Herzogia 9: 149-166.
Litterski B., 1993. Die Flechten der Insel Rügen. Herzogia 9: 415-474.
Łomniewski K., Mańkowski W., Zaleski J., 1975. Morze Bałtyckie. PWN, Warszawa.
Nimis P. C., 1993. The lichens of Italy. An annotated cataloque. Museo di Scienze Nat. Torino.
Nowak J., Tobolewski Z., 1975. Porosty polskie. PWN, Warszawa, 1177 pp.
Purvis O. W., Coppins B. J., Hawksworth D. L., James P. W., Moore D. M., 1992. The lichens of the Great Britain and Ireland. The British Lichen Soc. Londyn, 517 pp.
Santesson R., 1993. The lichens and lichenicolous fungi of Sweden and Norway. SBT-forlaget, Lund, 240 pp.
Sągin B., 1993. Flora porostów rezerwatu „Kępa Redłowska" w Gdyni i jej zmiany w ciągu ostatnich sześćdziesięciu lat. Parki Narodowe i Rezerwaty Przyrody 12. 4: 12-28.
Smith A. L., 1926. A monograph of the British lichens. 2. British Museum, Londyn. 357 pp.

Pyrenocollema halodytes, porost nowy dla lichenoflory Polski

Streszczenie

W pracy podano opis *Pyrenocollema halodytes* na tle rozmieszczenia jego stanowisk w Europie. Jest to gatunek morski znajdowany dotychczas na wybrzeżach mórz o większym zasoleniu. W Polsce występuje na dwóch stanowiskach, ale prawdopodobnie jest to gatunek bardziej częsty na naszym wybrzeżu, chociaż trudny do znalezienia ze względu na niepozorną plechę. Na obu stanowiskach rośnie na podłożach antropogenicznych.