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Additions to the lichen flora of Iceland III.

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ABSTRACT: Ten species of lichens, *Caloplaca alcarum, C. borealis, C. castellana, Cladonia subfurcata, Physcia phaea, Rhizocarpon saanaënse, Sarcosagium campestre, Thrombium epigeum, Umbilicaria virginis* and *Xanthoria polycarpa* are recorded as new to Iceland. Two species, *Ionaspis ventosa*, first recorded 1989, and *Cladonia strepsilis*, first recorded 1972, are recorded from new localities.

In the 14 years that have passed since the last paper in this series appeared in Acta Botanica Islandica 1980, many authors have contributed to the Icelandic lichen flora. Three papers (KRISTINSSON, BALDURSDÓTTIR & BJÖRNSSON 1981; ORANGE 1990 and HANSEN 1990) report alltogether about 30 new species. Many authors have also included and referred to material from Iceland in their systematic treatments of different genera or species groups of lichens. All such records known to me have been collected and included in the checklist of Icelandic lichens which is in preparation at the Icelandic Institute of Natural History in Akureyri. The regional subdivision of Iceland is the same as shown on the map on page 36 in HALLGRÍMSSON & HAUERSLEV (1995). The four digit numbers refer to 10 × 10 km grid used to record plant distribution in Iceland (KRISTINSSON & JÓHANNSSON 1970). All cited specimens are kept in the herbarium of the Icelandic Institute of Natural History, Akureyri (AMNH), unless otherwise indicated.

Caloplaca alcarum Poelt

Thallus with rather short and flat lobes, 0.2-0.6 mm, or without lobes, consisting of densely crowded apothecia which soon become raised well above the substrate by means of a short stalk. The apothecia are generally 0.5-1.3 mm in diameter, bright yellow or orange-yellow in the center, with a lighter margin, frequently spotted or more or less covered with dark brown fungus hyphae. Large specimens resemble *Caloplaca scopularis*, especially the raised apothecia, but *C. alcarum* has much less pronounced marginal lobes and smaller apothecia. The ascospores are ellipsoidal, 9.5-13 × 4.5-6.5 µm, with 3-4.5 µm thick wall.

Rather common along the north and east coast of Iceland, also found in the west. This species has apparently been overlooked in Iceland in the

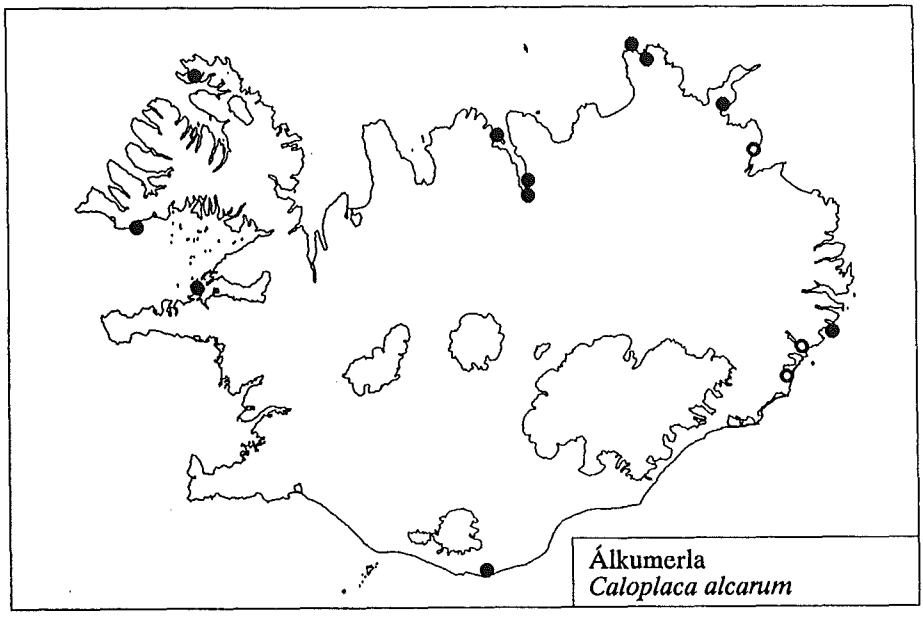

FIGURE 1. Distribution of *Caloplaca alcarum* in Iceland. Herbarium records are marked with dot, field records with circle.

past. It grows on coastal rocks near bird colonies, only found within a short distance from the shore. It is frequently found overgrowing other crustose lichens. The identification of some specimens was confirmed by Josef Poelt in Graz.

Material examined: **IVe:** 3248 Stykkishólmur, 18.8. 1982, leg. Sigríður Baldursdóttir (*7453*). - **INv:** 2844 Barðaströnd, Hrísnes, 5.7. 1994, leg. H.Kr. (*9556*). - 3234 Hesteyri, 21.7. 1968, leg. H.Kr. (*10218*). - **INa:** 5441 Kræklingahlíð, Einarsstaðasker, 26.5. 1992, leg. H.Kr. (*14837*). - 5238 Hrísey, 22.6.1983, leg. Sigríður Baldursdóttir (*14905*). - 5442 Svalbarðsströnd, Litli-Hvammur, 9.5. 1974, leg. H.Kr. (*15648*). - 6233 Melrakkaslétta, Blikalón, 7.7. 1993, leg. H.Kr. (*16760*). - 6132 Melrakkaslétta, Núpskatla, 7.7. 1993, leg. H.Kr. (*16759*). - **IAu:** 6736 Finnafjörður, Urðarfjall, 6.7. 1993, leg. H.Kr. (*27025*). - 7451 Breiðdalsvík, Sandhöfði, 11.6. 1993, leg. H.Kr. (*18702*).

Caloplaca borealis (Vain.) Poelt

Thallus white, apothecia yellow-orange, 0.2-0.6 mm in diameter, flat and adpressed with thin, concoloured to greyish margin, ascospores 12-16 µm long.

Rare species, found only in one locality on the bark of *Betula pubescens*. The identification was confirmed by Ulrik Søchting, Copenhagen.

Material examined: **INv**: 3140 Dýrafjörður, Botnsskógur, 25.7. 1968, leg. H.Kr. (*10469*).

Caloplaca castellana (Räsänen) Poelt

The lichen forms dark red-orange apothecia with bright red-orange, often crenulate margin. Thallus lobes bright red-orange. Apothecia 0.3-0.8 (1.0) mm in diameter, ascospores 6-9 × 11-14 µm.

Caloplaca castellana is frequently found directly on a black crust of blue-green algae or overgrowing other lichens. Both thallus lobes and apothecia appear rather scattered against the black background of the host, giving the lichen a very characteristic appearance.

Rather rare species growing in very special kind of habitat along periodically wetted water seepages on smooth, gently sloping rock faces. The species was first discovered on the sloping rocks of Leifsstaðabrúnir near Akureyri, and later in a few other localities in the same area. The screening of herbarium specimens revealed a few more specimens from other parts of the country. The identification was confirmed by Josef Poelt.

Material examined: **INa**: 5442 Kaupangssveit, Leifsstaðabrúnir, 1992, leg. H.Kr. (14877). - 5442 Eyjafjörður, Stóri-Hvammur, 2.6. 1992, leg. H.Kr. (*14848*). - 5142 Hörgárdalur, Féegg, 4.8. 1973, leg. H.Kr. (*14876*). - 5143 Hörgárdalur, Flögusel, 1993 (H.Kr., field record). - 5642 Goðafoss, 12.7. 1979, leg. H.Kr. (*15723*). - 5642 Goðafoss, 15.7. 1979, leg. H.Kr. & Hans Ullrich, (*15605*). - **ISu**: 5067 Near Vík, Fagradalshamrar, 8.6. 1993, leg. H.Kr. (*20616*). - 4864 Þórsmörk, Krossáraurar north of Göltur, 4.7. 1979 leg. H.Kr. (*21274*).

Cladonia strepsilis (Ach.) Vain.

The only record of this species in Iceland is a collection from Neskaupsstaður cited by KRISTINSSON (1972). In 1993 a second locality, in Austu-Skaptafellssýsla by Stokksnes, was discovered. These finds indicate that this is a rare species with an eastern distribution in Iceland. Only primary squamules were present, yellowish green, the margin divided and crenate. Characterized by C+ green reaction of the thallus.

Material examined: **IAu:** 6957 Stokksnes, 10.6. 1993, leg. H.Kr. & Starri Heiðmarsson (*19834*).

Cladonia subfurcata (Nyl.) Arn.

One specimen collected in Langahlíð in Grafningur District by Guðrún Á. Jónsdóttir was identified as *C. subfurcata.* In my opinion the specimen is not quite typical, but it has been identified on the basis of the blackish, spotted podetia and the squamatic acid found by TLC. The identification has been confirmed by Teuvo Ahti in Helsinki with the note, that the specimen is unusually squamulose.

Material examined: **ISu:** 3959 Grafningur, Langahlíð, 28.9. 1979, leg. Guðrún Á. Jónsdóttir (*22480*).

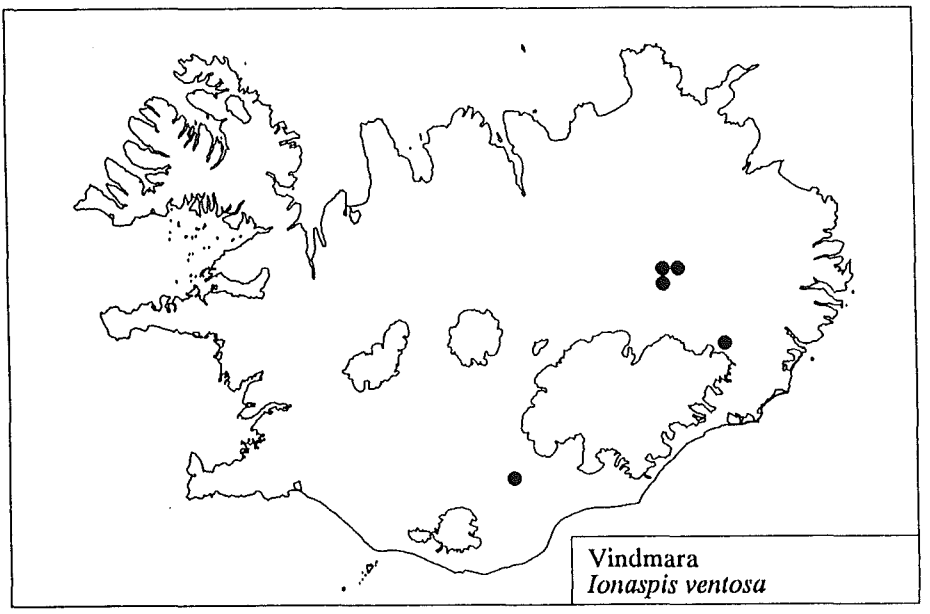

FIGURE 2. Distribution map of *Ionaspis ventosa* in Iceland.

Ionaspis ventosa P.M. Jörg. & R. Sant.

First recorded from Iceland by JØRGENSEN & SANTESSON (1989), based on a specimen collected in Síðumannaafréttur in the central highland, by Steindór Steindórsson in 1937. Their description fits well the specimens cited here. The plants are either small in diameter found growing in sheltered depressions on the rock surface, or forming dense, almost continuous thalli which give characteristic grey or brownish-grey tone to the rock. Characteristic of these specimens are the subglobose spores, the I+ blue paraplectenchym below the subhymenium, and the K+ purple reaction of the hymenium itself.

The species appears to be rather common, at least in some parts of the central highland of Iceland. It seems to be rather resistant to erosive forces, which severely affect many other lichens in this area. It grows on the surface of large, dry boulders, or on smaller stones on gravelly ground.

Material examined: IMn: 6347 Along the Arnardalsá River, 15.8. 1993, leg. H.Kr. (*26301*). - 6447 Dyngjuháls, 12.8. 1993, leg. H.Kr. (*26305*). - 6348 Þorlákslindahryggur, 14.8. 1993, leg. H.Kr. (*26290*). - **IAu:** Folavatn, 9.9. 1993, leg. H.Kr. (*27160*).

Physcia phaea (Tuck.) J.W. Thomson

The specimens appear typical, with regular, dark grey, white spotted, convex, 0.5-1 mm broad lobes without sorals; numerous rather small (1-

1.2 mm) apothecia; the medulla reacting K+ yellow.

Rare species, apparently restricted to the eastern part of the country. Found in two localities, on basalt rock along streams in both cases.

Material examined: IAu: 5738 Húsavík, Búðará, 24.7. 1989, leg. H.Kr. (*27149*). - 7146 Egilsstaðir, along Lagarfljót Stream, 24.7.1990, leg. H.Kr. (*18801*).

Rhizocarpon saanaënse Räsenen

Rare species, found in one locality in the central highland growing on some kind of palagonite with calcite. The thallus is light yellow or whitish-pruinose with large, convex areolae, the medulla J+ blue and Pd-, the epihymenium dark brown, K+ red.

This find was a rather unexpected one, since calcareous rock is not common in Iceland. It was found on the top of large boulder of palagonite.

Material examined: IMn: 6447 Mynnisfjallgarður near Mynnishagar, 560-600 m, 12.8. 1993, leg. H.Kr. (*26316*).

Sarcosagium campestre (Fr.) Poetsch & Schied.

Rare species, found in one locality in the central highland, growing on rather moist tephra, probably overflooded with water at least in the spring and early summer. Richly fertile, and noticed mainly because of the orange colour of the apothecia growing on the tephra soil.

Material examined: IMn: 6348 West of Arnardalsfjöll, about 500 m, 15.8. 1993, leg. H.Kr. (*26264*)

Thrombium epigeum (Pers.) Wallr.

Thallus smooth, crustose, whitish to ash brown, perithecia immersed, 0.3-0.4 mm wide with black wall, only the 0.15 mm wide ostiole visible as a black spot on the surface. Ascospores 20-30 × 7.5-12 µm.

Very rare, found only in two localities; amongst primary colonizers on disturbed soil along recently built road, and on soil in dwarfshrub heath.

Material examined: INa: 5144 Öxnadalur, near Bakkasel, 1991, leg. Sigurður H. Magnússon, det. H.Kr. - 5843 Mývatnsheiði, Ytri-Selbunga, 30.10. 1989, leg. H.Kr. (*15927*)

Umbilicaria virginis Schaer.

Thallus 4-8 cm in diameter, richly fertile, with coarse, reticulate ridges on the upper side. The lower side rosa, with greyish-black rhizines and pronounced balks radiating out from the umbilicus. The plants contain gyrophoric acid; norstictic acid was not found (TLC).

Very rare species, found only in one locality on nunataks in the Vatnajökull glacier.

Material examined: IAu: 6258 Vatnajökull, Vesturbjörg í Esjufjöllum, in cliffs. 19.7. 1979, leg. Kristbjörn Egilsson, det. H.Kr. (19534).

Xanthoria polycarpa (Hoffm.) Th. Fr. ex Rieber

Thallus with thin, repeatedly divided, 0.1-0.5 mm broad marginal lobes, mature thalli crowded with numerous apothecia; apothecia 1-2 mm in diameter, yellow-orange, margin lighter with shiny surface.

Found in two localities on old, cultivated trees of *Sorbus aucuparia* in gardens. It has not been found on wild trees in nature.

Material examined: IVe: 3752 Hreðavatn, on tree in the garden, 12.8. 1989, leg. H.Kr. - 3654 Hvanneyri, on *Sorbus* in an old garden, 4.9. 1993, leg. H.Kr.

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