

A contribution to the lichen flora of the Kangerlussuaq area, West Greenland

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Abstract — This paper lists 105 infrageneric taxa of lichens from the Kangerlussuaq area in West Greenland. *Arctoparmelia separata* is new to Greenland. *Fulgensia desertorum* is new to West Greenland. 49 entries represent the first report from the Kangerlussuaq area. © 2000 Adac / Éditions scientifiques et médicales Elsevier SAS

lichen flora / Kangerlussuaq / Greenland

Résumé — Cet article constitue une liste des 105 taxa infragénériques connus pour la région de Kangerlussuaq (Groenland Occidental). *Arctoparmelia separata* est cité pour la première fois au Groenland et *Fulgensia desertorum* pour le Groenland Occidental. Quarante-neuf taxa sont nouveaux pour la région de Kangerlussuaq. © 2000 Adac / Éditions scientifiques et médicales Elsevier SAS

flore lichénique / Kangerlussuaq / Groenland

INTRODUCTION

The lichen flora of West Greenland is much better known than that of East Greenland. However, the coastal areas have been more intensively explored than the inland areas, particularly regarding the crustaceous lichens (Dahl, 1950; Lynge, 1937; Hansen, 1962). The surroundings of the inland locality, Kangerlussuaq, are of special interest because of the widespread occurrence of steppe-like plant communities rich in xerophilous lichens. The lichen flora has been investigated in situ by, for example, Christiansen and Böcher (Böcher, 1954, 1959), Alstrup (1979, 1982, 1986), Hansen (1986a,b) and Ullrich and Poelt (Hansen, Poelt & Söchting, 1987; Hansen & Poelt, 1987). Additional information about the lichen flora of Kangerlussuaq has been given by, e.g., Moberg & Hansen (1986), Breuss & Hansen (1988) and Hansen (1995, 1998a, 1998b, 1999). The present paper is based upon collections made by the author in the summer of 1998. It aims to contribute further to the knowledge of the lichen flora of the Kangerlussuaq area as a step towards a checklist of the lichens of the whole area.

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MATERIALS AND METHODS

Study area

Kangerlussuaq (67°02'N, 50°40'W) is located near the head of Søndre Strømfjord. The area is characterized by up to c. 600-m-high mountains mainly composed of gneiss (Mt. Hassel, Ravneklippen, Sugar Loaf etc.) and wide, sandy valleys such as Sandflugtdalen and Ørkendalen. Sand and loess with pH of about 7 are common soil types in the area. Dwarf-shrub heath, willow-copse, fen, steppe, fell-field and saxicolous plant communities are the most important vegetation types (Böcher, 1954). The climate is low arctic, continental. According to Asiaq/Grønlands Forundersøgelser the mean temperature of the warmest month, July, is 10 °C, while the mean temperature of the coldest month, February, is – 20 °C. The mean annual precipitation is 140 mm (1974–1990).

Collection and Identification

Lichens were collected at numerous sample plots in the Kangerlussuaq area. The collected material, a total of 135 lichen specimens, was studied with Zeiss light microscopes. The specimens are deposited at the Botanical Museum, University of Copenhagen (C). 23 numbers have been distributed to selected herbaria as a part of "Lichenes Groenlandici Exsiccati"¹. The nomenclature in the following list of lichens mainly follows Santesson (1993).

LIST OF LICHENS

* *Acarospora rhizobola* (Nyl.) Alstrup – 98227a; 98250. A rare lichen growing on mineral soil. Northern Europe, Greenland and the Russian Arctic.

Acarospora schleicheri (Ach.) A. Massal. – 98235a. A scattered lichen on dry, calcareous soil. At first parasitic on species of *Diploschistes*. Circumpolar, also South Africa.

* *Arctoparmelia separata* (Th. Fr.) Hale – 98476. A scattered to common, circumpolar lichen on mosses, soil and rocks. New to Greenland.

Arthrorhaphis alpina (Schaer.) R. Sant. – 98223a; 98290. A widespread, holarctic lichen on soil influenced by calcium. At first parasitic on *Baeomyces rufus*.

* *Aspicilia mastrucata* (Wahlenb.) Th. Fr. – 98455. A scattered lichen of siliceous rocks. Scandinavia, Greenland, Siberia.

* *Brodoa oroarctica* (Krog) Goward – 98231f. A scattered, circumpolar lichen growing on rocks.

* *Bryoria chalybeiformis* (L.) Brodo & D. Hawksw. – 98231e, 98284. A common, circumpolar and bipolar lichen occurring on soil, rocks and bark.

* *Buellia papillata* (Sommerf.) Tuck. – 98277b; 98278. A common, circumpolar and bipolar lichen growing on mosses, plant debris and soil.

* *Caloplaca castellana* (Räsänen) Poelt – 98462. A rare to scattered, circumpolar lichen growing parasitically on *Placynthium asperellum*, species of *Rhizocarpon* and other lichens on seepage surfaces.

¹ Specimen numbers are given in the following list of lichens. Lichens, which are new to the Kangerlussuaq area, are marked by an asterisk (*) in front of the name.

Caloplaca cerina (Ehrh. ex Hedw.) Th. Fr. – 98228c; 98233b. A common, circumpolar lichen on mosses, plant debris, soil and old bones.

Caloplaca epithallina Lyngé – 98464. This lichen is very rare in North America, but fairly common in Greenland. At Kangerlussuaq it grows parasitically on the thallus of *Rhizoplaca chrysoleuca*, *R. melanophthalma* and *Dimelaena oreina*.

* *Caloplaca jungermanniae* (Vahl) Th. Fr. – 98279b. A common, circumpolar lichen on mosses, plant debris and soil.

* *Caloplaca lithophila* H. Magn. coll. – 98228f. On rocks and old bones. This taxon is heterogenous and in need of further revision.

Caloplaca tirolensis Zahlbr. – 98218b; 98228d. A common, circumpolar lichen on mosses, plant debris, soil and old bones.

Caloplaca tominii Savicz – Lich. Groenl. Exs. 722 & 734. 98252a; 98261. A rare lichen growing on sand, loess and silt rich in calcium. Scandinavia, Greenland, North America and Central Asia.

* *Candelariella aurella* (Hoffm.) Zahlbr. – 98228e; 98233. A scattered to common, circumpolar lichen on old bones and rocks rich in calcium or influenced by nitrogen.

Candelariella placodizans (Nyl.) H. Magn. – 98288c; 98289. A scattered, circumpolar lichen on soil and plant debris.

* *Candelariella vitellina* (Hoffm.) Müll. Arg. – 98472. A very common and extremely widespread lichen on rocks and wood. Rarely on soil.

Cetraria muricata (Ach.) Eckfeldt – 98454. A common and widespread, terricolous lichen.

* *Cladonia arbuscula* (Wallr.) Flot. ssp. *mitis* (Sandst.) Ruoss – 98295a. A very common and widespread, terricolous lichen.

* *Cladonia borealis* S. Stenroos – 98226; 98246. A common, circumpolar lichen growing on soil and humus.

* *Cladonia luteoalba* Wheldon & A. Wilson. – 98247; 98271b. A scattered, circumpolar and bipolar lichen on soil and mosses.

Cladonia pocillum (Ach.) Grognot – Lich. Groenl. Exs. 719. 98232; 98251. A common and widespread lichen on calcareous soil.

* *Collema undulatum* Laurer ex Flot. var. *granulosum* Degel. – 98255; 98258b. A scattered, circumpolar lichen growing on calcareous soil and rocks.

Dimelaena oreina (Ach.) Norman – Lich. Groenl. Exs. 726. 98231c. A common, circumpolar lichen growing on many types of rocks.

Diploschistes muscorum (Scop.) R. Sant. – Lich. Groenl. Exs. 724. 98234; 98235b; 98266. A scattered, circumpolar lichen growing on sand and loess.

Endocarpon pusillum Hedw. – 98256; 98257; 98270. A scattered, circumpolar lichen growing on calcareous soil.

Flavocetraria cucullata (Bellardi) Kärnefelt & Thell – 98216; 98242b. A common, circumpolar, terricolous lichen.

Flavocetraria nivalis (L.) Kärnefelt & Thell – 98242a. A common and widespread, terricolous lichen.

Fulgensia bracteata (Hoffm.) Räsänen – 98243. A widespread lichen on calcareous soil in the northern hemisphere.

* *Fulgensia desertorum* (Tomin) Poelt – 98292. A rare and disjunct lichen growing on loess and sand (Hansen, 1993). New to West Greenland.

* *Fuscopannaria praetermissa* (Nyl.) P. M. Jørg. – 98277a. A scattered, circumpolar lichen growing on soil and mosses.

Hypogymnia austerodes (Nyl.) Räsänen – 98217; 98281b; 98282. A scattered to common, circumpolar lichen occurring on mosses, soil, bark, wood and rocks.

- * *Lecanora argopholis* (Ach.) Ach. – 98237a; 98271. A scattered, circumpolar lichen growing on rocks influenced by nitrogen.
- * *Lecanora behringii* Nyl. – 98228b; 98233c. A rare, circumpolar lichen growing on plant debris, old bones and rocks.
- Lecanora epibryon* (Ach.) Ach. – 98276b; 98280. A common, circumpolar lichen occurring on mosses, plant debris, soil and wood.
- Lecanora geophila* (Th. Fr.) Poelt – 98288a; 98294. A rare and scattered, circumpolar lichen growing on soil and mosses.
- Lecanora polytropa* (Ehrh. ex Hoffm.) Rabenh. – 98225. A very common, circumpolar lichen growing on many types of rocks.
- Lepraria neglecta* (Nyl.) Lettau – 98223b. A common, circumpolar lichen growing on mosses and soil.
- * *Leptoloma vouauxii* (Hue) J. R. Laundon – 98218a. A common, circumpolar and bipolar lichen occurring on mosses, bark, soil and rocks.
- * *Leptogium lichenoides* (L.) Zahlbr. – 98237b; 98276a. A scattered to common, circumpolar, calciphilous lichen growing on mosses and soil.
- * *Leptogium saturninum* (Dicks.) Nyl. – Lich. Groenl. Exs. 729. 98281a. A scattered to common, circumpolar lichen growing on bark, mosses, soil and rocks.
- * *Lobaria scrobiculata* (Scop.) DC. – 98475. A scattered, circumpolar lichen growing on rocks and at the bases of shrubs.
- * *Megaspora verrucosa* (Ach.) Hafellner & V. Wirth – 98457. A scattered, circumpolar and bipolar lichen growing on soil, mosses and plant debris.
- * *Melanelia disjuncta* (Erichsen) Essl. – 98221. A common, circumpolar, saxicolous lichen.
- * *Melanelia infumata* (Nyl.) Essl. – 98272. A scattered to common, circumpolar lichen growing on rocks influenced by nitrogen.
- Nephroma expallidum* (Nyl.) Nyl. – Lich. Groenl. Exs. 731. 98295b. A scattered to common, circumpolar, terricolous lichen.
- * *Ochrolechia upsaliensis* (L.) A. Massal. – Lich. Groenl. Exs. 732. 98279a. A scattered to common, circumpolar and bipolar lichen growing on soil, plant debris and mosses.
- Ophioparma lapponica* (Räsänen) Hafellner & R. W. Rogers – 98461. A common, circumpolar, saxicolous lichen.
- Parmelia sulcata* Taylor – 98229. A very common, circumpolar lichen on rocks and bark.
- Peltigera aphthosa* (L.) Willd. – Lich. Groenl. Exs. 725. 98273b; 98274; 98285. A very common and widespread, terricolous lichen.
- Peltigera canina* (L.) Willd. – Lich. Groenl. Exs. 730. 98273a. A very common, cosmopolitan, terricolous lichen.
- * *Peltigera collina* (Ach.) Schrad. – 98473. A rare and scattered, circumpolar lichen growing on mosses, plant debris, bark and rocks.
- Peltigera didactyla* (With.) J. R. Laundon – 98235d; 98249. A common, circumpolar, terricolous lichen.
- Peltigera lepidophora* (Nyl. ex Vain.) Bitter – 98254b; 98264. A scattered, circumpolar lichen growing on calcareous soil.
- Peltigera leucophlebia* (Nyl.) Gyeln. – 98454. A common, circumpolar, terricolous lichen.
- Peltigera malacea* (Ach.) Funck – 98286. A common, circumpolar, terricolous lichen.
- * *Peltigera membranacea* (Ach.) Nyl. – 98453. A rare and scattered, circumpolar, terricolous lichen.

Peltigera rufescens (Weiss) Humb. – Lich. Groenl. Exs. 712. 98235c. A very common, circumpolar, terricolous lichen.

* *Peltigera venosa* (L.) Hoffm. – 98470. A scattered, circumpolar lichen on calcareous soil.

Pertusaria coriacea (Th. Fr.) Th. Fr. – 98456. A scattered, circumpolar, terricolous lichen.

* *Pertusaria panyrga* (Ach.) A. Massal. – 98458. A scattered to common, circumpolar, terricolous lichen.

Phaeophyscia constipata (Norrl. & Nyl.) Moberg – Lich. Groenl. Exs. 716. A very rare, circumpolar lichen growing on calcareous soil.

Phaeophyscia sciastra (Ach.) Moberg – 98239; 98269. A common, circumpolar lichen growing on rocks, soil, wood and bark.

Phaeorrhiza sareptana (Tomin) H. Mayrhofer & Poelt var. *sphaerocarpa* (Th. Fr.) H. Mayrhofer & Poelt – Lich. Groenl. Exs. 721. 98254a; 98258a; 98262. A rare lichen growing on calcareous soil. Norway, the Alps, Greenland and North America.

Physcia caesia (Hoffm.) Fűrnr. – Lich. Groenl. Exs. 718. 98230; 98248. A very common, circumpolar lichen growing on rocks, wood, bark, old bones and soil.

Physcia dubia (Hoffm.) Lettau – Lich. Groenl. Exs. 717. 98231a. A very common, circumpolar lichen growing on wood, bark, old bones and rocks influenced by nitrogen.

* *Physcia magnussonii* Frey – 98224. A rare and scattered, circumpolar, saxicolous lichen.

Physcia phaea (Tuck.) J. W. Thomson – 98460. A scattered, circumpolar, saxicolous lichen.

Physconia muscigena (Ach.) Poelt – Lich. Groenl. Exs. 720. 98265. A common, circumpolar, calci- and nitrophilous lichen growing on soil, mosses and rocks.

Placidium squamulosum (Ach.) Breuss – 98268. A very rare lichen growing on dry, calcareous soil. Probably circumpolar (Breuss & Hansen, 1988; Esslinger & Egan, 1995; Zhurbenko, 1996).

* *Placynthium asperellum* (Ach.) Trevis. – 98471. A scattered, circumpolar, saxicolous lichen.

Psora decipiens (Hedw.) Hoffm. – 98474. A scattered, circumpolar lichen growing on calcareous, clayey soil.

Psora rubiformis (Ach.) Hook. – Lich. Groenl. Exs. 714. 98259. A scattered, circumpolar, terricolous lichen.

Psora vallesiaca (Schaer.) Timdal – 98236. A very rare lichen growing on calcareous soil. North Africa, Europe, Greenland and North America.

* *Rhizocarpon disporum* (Nägeli ex Hepp) Müll. Arg. – 98231d. A scattered, circumpolar, saxicolous lichen.

Rhizocarpon geminatum Körb. – 98287a. A very common, circumpolar, saxicolous lichen.

Rhizocarpon geographicum (L.) DC. – Lich. Groenl. Exs. 733. 98287b. A very common, circumpolar and bipolar lichen growing on siliceous rocks.

Rhizocarpon grande (Flörke) Arnold – 98451. A common, circumpolar, saxicolous lichen.

* *Rhizocarpon inarense* (Vain.) Vain. – 98459. A scattered to common, circumpolar, saxicolous lichen.

* *Rhizocarpon praebadium* (Nyl.) Zahlbr. – 98466. A scattered, circumpolar lichen occurring on siliceous rocks.

* *Rhizoplaca chrysoleuca* (Sm.) Zopf – Lich. Groenl. Exs. 715. 98231b. A rare and scattered, circumpolar lichen growing on siliceous rocks.

Rhizoplaca melanophthalma (DC.) Leuckert & Poelt – Lich. Groenl. Exs. 727. A scattered to common, circumpolar lichen growing on siliceous rocks.

* ***Rinodina mniarea*** (Ach.) Körb. – 98253; 98289b. A scattered, circumpolar lichen on soil and humus.

Rinodina roscida (Sommerf.) Arnold – 98279c. A scattered, circumpolar lichen occurring on calcareous soil, plant debris and old dung.

* ***Rinodina turfacea*** (Wahlenb.) Körb. – 98288b. A common, circumpolar lichen occurring on plant debris, mosses and old wood.

Solorina bispora Nyl. – 98468. A scattered, circumpolar lichen growing on calcareous soil.

Solorina saccata (L.) Ach. – 98467. A scattered, circumpolar lichen growing on moist, calcareous soil.

* ***Solorina spongiosa*** (Ach.) Anzi – 98452. A rare and scattered circumpolar lichen growing on moist, calcareous soil.

Stereocaulon alpinum Laurer – 98449. A very common, circumpolar and bipolar terricolous lichen.

* ***Stereocaulon condensatum*** Hoffm. – Lich. Groenl. Exs. 728. A scattered, circumpolar lichen growing on sandy and gravelly soil.

* ***Stereocaulon glareosum*** (Savicz) H. Magn. – 98227b. A scattered, circumpolar lichen growing on sandy and gravelly soil.

Thamnolia vermicularis (Sw.) Schaer. var. ***subuliformis*** (Ehrh.) Schaer. – 98450. A very common, circumpolar and bipolar, terricolous lichen.

Toninia sedifolia (Scop.) Timdal – 98275. A scattered to common, circumpolar lichen growing on calcareous soil.

* ***Toninia tristis*** (Th. Fr.) Th. Fr. – 98260. A rare and scattered lichen occurring on soil and mosses. Europe, Greenland and North America.

* ***Umbilicaria arctica*** (Ach.) Nyl. – 98463. A common, circumpolar lichen growing on rocks influenced by nitrogen.

Umbilicaria decussata (Vill.) Zahlbr. – 98465. A scattered, circumpolar lichen growing on rocks influenced by nitrogen.

Umbilicaria hyperborea (Ach.) Hoffm. – 98241. A very common, circumpolar, saxicolous lichen.

* ***Umbilicaria krascheninnikovii*** (Savicz) Zahlbr. – 98220. A scattered, circumpolar, saxicolous lichen. The present collection moves its known southern limit of distribution in West Greenland from Disko to Kangerlussuaq.

* ***Umbilicaria lyngei*** Schol. – Lich. Groenl. Exs. 713. A scattered to common, circumpolar, saxicolous lichen.

* ***Umbilicaria vellea*** (L.) Hoffm. – 98472. A common, circumpolar, saxicolous lichen.

* ***Umbilicaria virginis*** Schaer. – 98219; 98245. A scattered to common, circumpolar, saxicolous lichen.

* ***Xanthoria borealis*** R. Sant. & Poelt – 98477. A common, circumpolar lichen occurring on bark and rocks influenced by nitrogen.

Xanthoria elegans (Link) Th. Fr. – Lich. Groenl. Exs. 723. 98222; 98228a; 98238. A very common, circumpolar lichen occurring on rocks, old dung, old bones and old wood. The species has a distinct preference for substrata rich in nitrogen and calcium.

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