

Mycological Investigations in Iceland, IV

by

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In four years (March, 1964-March, 1968) of study on the aquatic fungi of Iceland and Surtsey over two thousand collections have been made with a total yield of approximately two hundred and seventy-five species identified. Two hundred and ninety samples were taken in the period from March, 1967 - March, 1968. For the most part, sampling and trapping stations were located in southern Iceland, the Vestmannaeyjar and on Surtsey. Following past practices, fungi were collected on baits (hempseed, pollen, snakeskin, and cellophane), on submerged wood panels, apples, and twigs, and on marine and freshwater algae.

The total aquatic mycoflora of Iceland and its coastal waters is of course unknown, but the segments thus far uncovered present some unique mycological problems. Accordingly, recent emphasis has been on (1) exploration of particular systematic or developmental problems, and (2) identification of fungi on marine algae. Compilation of a species list continues, but is not an effort of first priority.

The developmental morphology of Mycosphaerella ascophylli has been worked out in its entirety. This fungus occurs on Ascophyllum nodosum, but its role in the reduction of populations of this alga remains obscure. Several chytridiaceous fungi have been collected on other marine algae. Among these is a Phlyctochytrium of the ornamented series, the first such fungus found in a marine habitat. Petersenia lobata and P. pollagaster occur in moribund Ceramium rubrum on the south coast of the Reykjanes Peninsula and on Heimaey. In Polysiphonia violacea from the shoreline of Heimaey, and near Keflavik, a fungus resembling Pleotrachelus inhabilis (?) has been

collected. Its complete morphology is unknown since the material is sparse, but in terms of spore discharge pattern, it suggests a species of Petersenia. Other fungi occurring in marine algae include Olpidiopsis feldmanni, and a form of O. andreei (on Acrosiphonia and Trailliella), and Chytridium polysiphoniae on Pylaiella litoralis. The latter fungus is one of a species complex, and studies are under way to determine justifiable limits to the species.

In addition to the foregoing species, collections of fresh-water algae from the southwestern and southern portions of Iceland have harbored several aquatic fungi. Notable in the collections are Ancylistes closterii (in Closterium), Chytridium lagenaria (on Cladophora), C. versatile (on Fragilaria), Diplophlyctis intestina (endobiotic in Chara), Myzocyttium proliferum (in Spirogyra), Olpidium endogenum and O. entophytum (in Closterium and Spirogyra, respectively), and Podochytrium clavatum (on Pinnularia). Chytridium versatile var. podochytrioides is shown to be a Podochytrium with affinities to P. cornutum. These are, of course, all new records for Iceland.

As is common in survey studies on aquatic fungi, specimens are found which, because of paucity of material, cannot be identified with confidence. Material thus far collected from southwestern Iceland and Heimaey include representatives of Micromyces, Phlyctidium, Phlyctochytrium, Blyttomyces, Chytridium and Rhizophydium.

From baited cultures (soil and water) nineteen species of aquatic fungi have been collected and identified, but well over fifty additional species have been recovered. Among the fungi on marine algae are Ectrogella perforans, Pontisma lagenidioides and Sirolpidium bryopsidis. The freshwater species show rather remarkable distributional patterns. Two examples are illustrative. Phlyctochytrium punctatum and P. irregulare, known only from the U.S., occur also in lava soils below moss tussocks in southwestern Iceland. The watermold Achlya spiracaulis has a known distribution in Louisiana, Michigan, and Iceland.

Marine Fungi Imperfecti have not been found in abundance in Icelandic coastal waters. Nine species have been identified, and a host of unidentified forms in the genus Phoma have been recovered.

from submerged wood. Several collections of imperfects in the Helicoma-Zalerion-Dictyosporium complex await comparative studies for identification. In the colder waters of Iceland Dictyosporium-like fungi with morphological affinities to Helicoma are common, and should be useful in delimiting generic limits.

Among the marine lignicolous Ascomycetes of Icelandic coastal waters, Ceriosporopsis halima is ubiquitous. Five species of Halosphaeria (including two which seem only to inhabit colder waters), four of Remispora, and one or two species in Sphaerulina, Amphisphaeria, Corollospora and Leptosphaeria, also occur. Of unusual systematic and morphological interest are the recovered species of Zignoella and Haloguignardia. The latter genus, in particular, is very poorly known and needs considerable morphological study.

Following is a list of aquatic fungi found on driftwood or on marine algae cast ashore on Surtsey or floating off-shore:

- Oömycetes: Pythium spp. (possibly P. monospermum and  
P. torulosum)  
Aphanomyces bacillariacearum (in Pinnularia)  
Sirolpidium bryopsidis (in floating Bryopsis)
- Deuteromycetes: Phoma spp.  
Dinemasporium marinum
- Ascomycetes: Ceriosporopsis halima  
Amphisphaeria maritima  
Lulworthia medusa

No soil- or freshwater-inhabiting aquatic fungi have been isolated from Surtsey, although such organisms are abundant on Heimaey.

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