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Abstract
This paper reports, for the first time, 25 species of marine pyrenomycetes from Icelandic waters. Taxonomic notes are included for certain species.

Surtsey, a submarine volcanic upthrust off the south coast of Iceland (Thorarinsson, 1967), is a current center for cooperative geophysical, geochemical, and biological investigations on an international scale. The mycological portion of the total biological research effort of the Surtsey project has emphasized a survey of the marine and freshwater mycoflora on the mainland of Iceland itself as a necessary prerequisite to ecological studies on Surtsey. With the exception of two reports on aquatic phycomycetes (Larsen, 1931, and Johnson, 1966), the aquatic mycoflora of Iceland is unknown. Thus Iceland, rather than Surtsey, has become the immediate focal point for mycological investigations.

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MARINE FUNGI OF ICELAND: A PRELIMINARY ACCOUNT OF ASCOMYCETES

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SUMMARY

This paper reports, for the first time, 25 species of marine pyrenomycetes from Icelandic waters. Taxonomic notes are included for certain species.

Surtsey, a submarine volcanic upthrust off the south coast of Iceland (Thorarinsson, **1967**), is a current center for cooperative geophysical, geochemical, and biological investigations on an international scale.

The mycological portion of the total biological research effort of the Surtsey project has emphasized a survey of the marine and freshwater mycoflora on the mainland of Iceland itself as a necessary prerequisite to ecological studies on Surtsey. With the exception of two reports on aquatic phycomycetes (Larsen, **1931**, and Johnson, **1966**), the aquatic mycoflora of Iceland is unknown. Thus Iceland, rather than Surtsey, has become the immediate focal point for mycological investigations.

ASCOMYCETE FLORA

The present list of marine ascomycetes represents collections made from 1965. All species found represent new records. The chief collecting sites have been on the southwestern coasts (the Reykjanes Peninsula) and on Heimaey, the largest island of the southern Vestmannaeyjar chain (FIGS. 1, 2). Since distributional data are con-

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FIG. 1

FIG. 2

FIG. 1. Outline map of Iceland showing location of Surtsey in relation to the capital, Reykjavik, and the southern-most Vestmannaeyjar islands. FIG. 2. Inset of FIG. 1. The Reykjanes peninsula, showing the locations of major collecting sites.

tinually being added as new collections are made, there is no effort, in this report, to include precise site information or implications thereof. Where appropriate, some comments regarding collections are made.

1. *Amphisphaeria maritima* Linder. Twenty collections. The fungus is common on drift at all sites.

2. *Ceriosporopsis halima* Linder. Forty-two collections. This organism is found at all collecting sites and appears to be the most common marine pyrenomycete in Icelandic waters.

3. *Corollospora comata* (Kohlm.) Kohlmeyer. Six collections. Spores with 1–3 septations.

4. *Corollospora maritima* Werdermann. Three collections.

5. *Haloguignardia* sp. A single collection on driftwood from the bay at Hafnarfjördur. The fructifications were mixed with those of *C. halima.* Paucity of material prevents identification beyond generic level.

6. *Halosphaeria appendiculata* Linder. A single collection on driftwood from Grindavik.

7. *Halosphaeria circumvestita* Kohlmeyer. A single, large collection from Hafnarfjördur; spores 17.2–23.8 × 9.2–17.0 μ.

8. *Halosphaeria mediosetigera* Cribb & Cribb. Three collections. Spores measure 24.0–40.6 × 10.2–17.0 μ.

9. *Halosphaeria torquata* Kohlmeyer. A single collection on driftwood from Sandgerdi.

10. *Halosphaeria tubulifera* Kohlmeyer. Common on driftwood along rocky shores.

11. *Lentescospora submarina* Linder. A single collection from Grindavik.

12. *Leptosphaeria albopunctata* (Westendorp) Saccardo. One collection from Hafnarfjördur. The predominant dimensions of the few spores present were typical of the species, 30.6 × 9.2 μ.

13. *Leptosphaeria discors* (Saccardo & Ellis) Saccardo & Ellis. Common on driftwood; in association with fructifications of other species. Spores typically rounded, with hyaline endcells, 27.2–40.8 × 13.6–20.4 μ.

14. *Leptosphaeria orae-maris* Linder. Three collections. Spores typically 4-celled, 13.6–20.4 μ.

15. *Lignincola laevis* Höhnk. Eleven collections have been tentatively identified as *L. laevis.* Spores are usually 2-celled, 13.0–34.0 × 6.5–17.6 μ. Occasionally, an additional septum is formed prior to or during the formation of germ tubes. With the exception of its non-appendaged spores, *L. laevis* resembles a number of didymosporous species. Other appendaged species which at times lack such processes, are often erroneously identified as *L. laevis.* Many collections of other species found in nature or cultured in the laboratory soon lose their appendages. Kirk (**1966**) has shown that most spores of *C. halima,* for example, after 6 months in culture, will not have appendages.

Such material, then, has perithecial and spore features identical to those of *L. laevis*. The question has often been raised whether or not *L. laevis* is a valid taxon. Although it is difficult to separate the species on a morphological basis, Kirk (**1966**) has shown that the spores of *L. laevis* are cytologically distinct from those of other marine didymosporous ascomycetes.

16. *Lulworthia medusa* (Ell. & Ev.) Cribb & Cribb. Seven collections. In an earlier publication (Cavaliere & Johnson, **1966**), 13 species and 2 varieties of *Lulworthia* were reduced to a single entity based on gross perithecial similarities and the fact that spore length in many specimens represents a continual series of overlap. These features, therefore, cannot be utilized to separate the species.

17. *Marinospora calyptrata* (Caval.) Cavaliere. A single collection of this fungus has been found from Keflavik. Cavaliere (**1966a**) removed *Ceriosporopsis calyptrata* Kohlm. from that genus and erected *Ceriosporella calyptrata* (Kohlm.) Cavaliere. *Ceriosporella calyptrata* is a stromatic fungus and clearly did not belong with nonstromatic forms. Because the name *Ceriosporella* Cavaliere was antidated by *Ceriosporella* Berlese, the name *Marinospora* (Cavaliere, **1966b**) was proposed in its place.

18. *Pleospora* sp. A single, unidentifiable species from rocky shores in the vicinity of Reykjavik.

19. *Remispora hamata* (Höhnk) Kohlmeyer. Four large collections have been identified as *R. hamata*. A single tapering, curved or hamate appendage at each end of the spore is the only gross morphological feature which distinguishes this fungus from *Ceriosporopsis halima*. Perithecial structures in these species are similar, but spore appendage origin may differ. Johnson and Cavaliere (**1963**) showed that the spore appendages of *R. hamata*, as well as all other Remisporas originate as fragments of the epispore wall, whereas those of *C. halima* (Johnson, **1963**) develop by growth or exudation from the spore. Both these modes of appendage formation were determined by morphological examination of living material. Kirk (**1966**) has demonstrated, through the use of cytochemical tests, that the spores of *R. ornata* are actually outgrowths of the spore. If additional studies indicate that the appendages of *R. hamata*, and other Remisporas are produced in the same fashion, the generic limits of this group of fungi will have to be reexamined.

20. *Remispora maritima* Linder. Two collections on driftwood.

21. *Remispora ornata* Johnson & Cavaliere. A single collection from waters near Reykjavik. The Kohlmeyers (**1964**) list *R. ornata* as

a synonym of *Halosphaeria appendiculata* based on supposed similarities in spore appendage insertion. Kirk (**1966**) has shown that *R. ornata* is a distinct species having close cytological affinities to *C. halima* and *H. tubulifera.*

22. *Remispora pilleata* Kohlmeyer. Three collections. Spores measure 27.2–34.0 × 17.0–20.4 μ.

23. *Sphaerulina orae-maris* Linder. Two collections.

24. *Sphaerulina pedicellata* Johnson. Two collections.

25. *Zignoella enormis* Patouillard & Hariot. Two collections. The spores measure 230–408 × 6.8–10.2 μ, possess 4–6 septations (6 septations being the most common), and the ascocarps are paraphysate.

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