

AQUATIC FUNGI FROM SOUTH BASS AND NEIGHBORING ISLANDS IN WESTERN LAKE ERIE. II. ADDITIONAL BIFLAGELLATE AND UNIFLAGELLATE PHYCOMYCETES*

J. A. SCHMITT AND E. S. BENEKE

Department of Botany and Plant Pathology, The Ohio State University, Columbus, and Department of Botany and Plant Pathology, Michigan State University, East Lansing

The first paper of this series (Beneke and Schmitt, 1961) summarized past records of aquatic Phycomycetes in Ohio. To date 45 species and several sterile isolates of certain genera have been reported from the state. This paper reports the results of an extension of the earlier studies. The current investigation was carried out during June-July, 1960, at the Franz T. Stone Laboratory, Put-in-Bay, Ohio, as part of the aquatic mycology course of The Ohio State University, Department of Botany and Plant Pathology.

Methods and Materials

The usual techniques of "baiting" soil or water samples were used throughout the investigation. Many of the water samples included twigs, leaves, algae, or organic debris. The common bait was sterilized hempseed halves, although de-waterproofed cellophane, pine pollen grains, and crabapples were also utilized. Soil samples were collected in disposable paper bags, while screw cap bottles were used for the water samples. The soil and water samples were collected from South Bass, Middle Bass, North Bass, Kelleys, and Gibraltar Islands, and from Miller's Blue Hole and its outflowing stream near Castalia, Ohio, on the mainland.

Results and Discussion

The fungi recovered and identified during June-July, 1960, are listed in table 1. Among these 26 taxa are several being reported from Ohio for the first time: *Saprolegnia diclina* and *Achlya rodrigueziana* (Saprolegniaceae), each isolated on hempseed from water samples from the northeast shore of South Bass and from Haunck's Pond, Middle Bass, respectively; *Pythium pulchrum* (Pythiaceae) on hempseed from water in Terwilligar's Pond, South Bass; *Blastocladia tenuis* (Blastocladiaceae) collected on crabapples as bait in Terwilligar's Pond; *Rozella allomycis* (Olpidiaceae), occurring as an endoparasite of *Allomyces arbuscula*, and *Entophylctis aurea* (Phlyctidiaceae), isolated on cellophane bait, from soil collected near the airport on Middle Bass. The first three species belong to the Biflagellatae, the latter three to the Uniflagellatae.

One additional fungus, tentatively identified as *Pythium cystosiphon*, was cultured from water collections taken at Miller's Blue Hole near Castalia, Ohio. This isolate agreed in most respects with Middleton's description (1943) of *P. cystosiphon*. Middleton called attention to the reticulate oospore wall of *P. cystosiphon* as unique among the spheroidal sporangiate Pythiums. This feature was manifest in less than 50% of the oospores formed by our isolate. In other characteristics our organism was within the limits stated for the species. Middleton further stated that the fungus is parasitic in plants of *Lemna* sp. and *Riccia fluitans*. Although our isolate was not observed within the *Lemna* plants, there was abundant *Lemna minor* in the water sample and gross culture plate. If the organism is again isolated from other water samples from Miller's Blue Hole so its taxonomic position as *P. cystosiphon* can be verified, it will be the first report of the species since the original description.

*Paper #652, Department of Botany and Plant Pathology, The Ohio State University, Columbus 10, Ohio.

A comparison of the families and orders of aquatic phycomycetes reported to date from Ohio reveals that members of the Chytridiales are conspicuously absent in the samples taken thus far. The two chytrid species herein reported were recovered from dry soil samples collected in early July. At that time, the portion of the sample used to establish the gross isolation culture was negative for chytrids. However, on re-culture in September, *Rozella allomycis* thalli were found in most of the hyphae of *Allomyces arbuscula*, and *Entophlyctis aurea* developed abundantly on de-waterproofed cellophane used as bait. It is also notable that no chytrid parasites were found on algal samples collected during June-July. Taft (personal communication) says he occasionally finds chytrid infestations in his algal collections made during July-August from this general area. Sparrow (1960) points out the fallacy in the assumption of an absence of chytrid saprophytes or parasites in freshly collected algae, emphasizing the changes inherent in the somewhat artificial environment of the laboratory as probably a major factor in the apparent

TABLE 1

*Aquatic Phycomycetes collected from South Bass and neighboring islands
in western Lake Erie, June-July, 1960*

Biflagellatae	Biflagellatae (Cont'd)
Saprolegniales	Leptomitales
<i>Saprolegnia</i> sp.	<i>Apodachlya brachynema</i>
<i>Saprolegnia declina</i>	Peronosporales
<i>Saprolegnia parasitica</i>	<i>Pythium</i> sp.
<i>Saprolegnia monoica</i>	<i>Pythium proliferum</i>
<i>Achlya</i> sp.	<i>Pythium pulchrum</i>
<i>Achlya klebsiana</i>	<i>Pythium cystosiphon</i> (?)
<i>Achlya americana</i>	
<i>Achlya flagellata</i>	Uniflagellatae
<i>Achlya rodrigueziana</i>	Blastocladales
<i>Geolegnia inflata</i>	<i>Allomyces arbuscula</i>
<i>Aphanomyces</i> sp.	<i>Blastocladia pringsheimii</i>
<i>Aphanomyces euteiches</i>	<i>Blastocladia tenuis</i>
<i>Aphanomyces laevis</i>	
<i>Dictyuchus anomalus</i>	Chytridiales
<i>Dictyuchus monosporus</i>	<i>Rozella allomycis</i>
Lagenidiales	<i>Entophlyctis aurea</i>
<i>Olpidiopsis saprolegniae</i>	

sudden onset of chytrid epidemics. Undoubtedly seasonal variations in chytrid populations are also involved.

Summary

Twenty-six genera or species of aquatic Phycomycetes were collected and identified during June-July, 1960, in the vicinity of South Bass Island in western Lake Erie. Six of these are reported from Ohio for the first time. An isolate from Miller's Blue Hole near Castalia, Ohio, possibly referable to *Pythium cystosiphon*, is discussed. The relative absence of members of the Chytridiales in samples from the South Bass Island vicinity is also discussed.

LITERATURE CITED

- Beneke, E. S. and J. A. Schmitt.** 1961. Aquatic fungi from South Bass and neighboring islands in western Lake Erie. I. Uniflagellate and biflagellate Phycomycetes. Ohio J. Sci. 61: 000-000.
- Middleton, J. T.** 1943. The taxonomy, host range and geographic distribution of the genus *Pythium*. Mem. Torrey Bot. Club 20: 1-171.
- Sparrow, F. K.** 1960. Aquatic Phycomycetes. 2nd. Ed. 1187 pp. The Univ. of Michigan Press, Ann Arbor.