

A PRELIMINARY STUDY OF AQUATIC HYPHOMYCETES ON LEAVES IN FOREST AND STREAM LEAF LITTER

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ABSTRACT

Thirteen humicolous and aquatic sites were randomly chosen in various areas of Georgia, Kentucky, North Carolina and Tennessee. Decaying leaves were sampled from these locations. A total of nineteen species of "aquatic" hyphomycetes were found. Twelve taxa new to Kentucky were found, seven to Tennessee, six to Georgia and two to North Carolina. Eight species of "aquatic" hyphomycetes were found in humicolous ecosystems.

INTRODUCTION

Petersen (1961) undertook a survey of certain streams in Georgia, North Carolina and Tennessee for aquatic hyphomycetes on leaf litter. A total of 24 taxa were found at that time.

It is now well known that certain "aquatic" hyphomycetes may be found in humicolous habitats (Bessey, 1939; Scourfield, 1940; Ranzoni, 1953; Waid, 1954; Tubaki, 1958; Webster, 1959, 1961; Petersen, 1963; Price and Talbot, 1966; Bandoni, 1972). The following species have been found by these authors: *Alato-*

spora acuminata Ing., *Anguillospora longissima* (Sacc. & Syd.) Ing., *Articulospora tetracledia* Ing., *Casaresia sphagnorum* Frag., *Clathrospira zalewskii* Van Beverwijk, *Gyoerffyella craginiformis* (Pet.) Marv., Marv. and Ruz., *Lemonniera terrestris* Tub., *Nectria lugdunensis* Web., *Tetrachaetum elegans* Ing., *Tetracladium setigerum* (Grove) Ing., *Tricladium splendens* Ing., *Varicosporium elodeae* Kegel, *Volucrispora aurantiaca* Hawk., *V. graminea* Ing., *Campylospora* sp., *Flagellospora* sp., *Lunulospora* sp., *Mollisia* sp., *Tricellula* sp., and *Varicosporium* sp. An investigation was undertaken to ascertain the presence of such organisms in the south-east Appalachian mountains forest and stream leaf litter.

METHODS

Thirteen sites were randomly chosen and sampled between September 14, 1974 to December 13, 1974. Partially degraded leaves were selected from woodlots and adjacent streams if available. These samples were transported to the laboratory in plastic bags. In the laboratory, the leaves were washed in cold running tap-water and placed in petri plates. Tap water was added to each of the plates and they stored for one week at 10°C. Fungal taxa were subsequently identified on the natural substrate.

TABLE 1:

Species of fungi collected on stream (S) and forest (F) leaf litter (letters in parenthesis following taxa indicate states in which taxon is new: G = Ga., K = Ky., N = N.C., T = Tenn.).

Counties	Tennessee							Kentucky N. Carolina Georgia					
	Sevier	Blount	Hawkins	Hancock	Cumberland	Davidson	Dickinson	Hickman	Polk	Allen	Macan	Towns	Robin
<i>Alatospora acuminata</i> Ing. (K)	F	S	S	S	SF	S	S	S	S	S	S	S	S
<i>Anguillospora longissima</i> (Sacc. & Syd.) Ing. (K)			S	S	S	S	S	S	S				S
<i>Articulospora tetracledia</i> Ing. (K)		S			S	S	S	S	S	S			S
<i>Clavariopsis aquatica</i> DeWild. (K,G)		S	S	S	S	S	SF	S	S	S			S
<i>Clavatospora longibrachiata</i> Nil. ex Marv. & Nil. (T,G)		S											S
<i>Culicidospora aquatica</i> Pet.		S									S		
<i>Dendrospora erecta</i> Ing.		S			S			S	S	S			S
<i>Lemonniera aquatica</i> DeWild. (K,G)					S	S	S	S	S				
<i>L. cornuta</i> Ran. (T,K)					S	S	S	S	S				
<i>L. terrestris</i> Tub. (T,K,G,N)		S		S	SF	S		S	S	S	S	S	S
<i>Lunulospora curvula</i> Ing. (T,K)			S	S	S	S	SF	S	S	S	S	S	S
<i>Margaritispora aquatica</i> Ing. (G,N)											S	S	S
<i>Tetrachaetum elegans</i> Ing. (K)		SF	S	S	S	S	S	S	S	S	S	S	S
<i>Tetracladium marchalianum</i> DeWild. (T,K)	F		S	SF	S	SF	S	S		S			
<i>T. setigerum</i> (Grove) Ing. (T)				SF		F							
<i>Tricladium angulatum</i> Ing. (T)		S											S
<i>T. gracile</i> Ing. (K)		S	S	S	S	S	SF	S		S	S	S	
<i>Triscelophorus monosporus</i> Ing. (K,G)		S			S	S	S			S	S	S	S
<i>Varicosporium elodeae</i> Kegel	F	SF			F						S		

RESULTS

The results are shown in Table 1. In addition, there were a number of as yet unidentified fungal spores found, but they are not considered in this paper.

DISCUSSION

Clavatospora longibrachiata, *Lemonniera cornuta*, *L. terrestris*, *Lunulospora curvula*, *Tetracladium marchalianum*, *T. setigerum* and *Tricladium angulatum* are species new to Tennessee. *Alatospora acuminata*, *Anguillospora longissima*, *Articulospora tetracladia*, *Clavariopsis aquatica*, *Demonniera aquatica*, *L. cornuta*, *L. terrestris*, *Lunulospora curvula*, *Tetrachateum elegans*, *Tetracladium marchalianum*, *Tricladium gracile*, and *Triscelophorus monosporus* are new to Kentucky. *Clavariopsis aquatica*; *Clavatospora longibrachiata*, *Lemonniera aquatica*, *L. terrestris*, *Margaritisporea aquatica* and *Triscelophorus monosporus* are new to Georgia. *Lemonniera terrestris* and *Margaritisporea aquatica* are new to North Carolina. As work continues, there will be additions to these lists.

The most successful areas for sampling for the terrestrial occurrence of aquatic hyphomycetes are those which have moderately heavy litter with partially decomposed leaves. This is consistent with Bandoni's (1972) findings. *Clavariopsis aquatica* and *Tricladium gracile* have not been previously found in litter. The remainder of the fungi found in the forest litter are consistent with the reports of other workers. The fungi diversity, in this habitat, is not great but according to

Bandoni, the species diversity found should increase during winter and spring as leaf degradation continues.

Most of the fungi found in humicolous samples were more frequently found in stream sampling. The exceptions to this were *Tetracladium setigerum* and *Varicosporium elodeae*, both of which are well known in terrestrial habitats and infrequent in aquatic systems.

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In accordance with the National celebration of the Bicentennial, the 1976 issues of the JTAS would like to welcome pertinent manuscripts devoted to historical Tennessee science figures and events.