Surveys and Classification of Trichomycete Gut Fungi in the Snake River Plain and Vicinity

Merlin M. White[1], Molly Bench, Lance Steele, Prasanna Kandel, Emma R Wilson, Sarah Oman, Alison Chamberlin, Barbara Langehenning, Donavon Carrie, Daleesa Cole, Eric Tretter, Yan Wang
[1]Boise State University
1910 University Dr
Boise, ID 83725
(208) 426-4638
merlinwhite@boisestate.edu

Trichomycetes or gut fungi are "hair-like" fungal endosymbionts, a former class established by Manier and Lichtwardt (1968) with four orders, all obligately associated with the digestive tracts of various arthropods. Trichomycetes often are considered to be commensals, but they are more likely than not to be mutualistic – providing benefits to their arthropod hosts. A recent, molecular-based, higher-level phylogenetic classification of the Fungi has left the Trichomycetes in a state of flux, but all of the members of the Orders Harpellales and Asellariales, commonly found in aquatic macroinvertebrates, are true fungi. The molecular-based revisionary synthesis of the classification of these early-diverging fungi requires the addition of taxa. As a cryptic ecological group, their diversity is considered to be underestimated. Previous and ongoing efforts to inventory the gut fungi of North America has been successful in adding many new taxa, however Idaho had remained largely unsurveyed. Since 2007 we have been conducting surveys in southern Idaho and vicinity, establishing a taxa list of gut fungi in the Snake River Plains Ecoregion. We will present our findings of new and known species, including yearlong or more surveys of Dry and Cottonwood Creeks in Boise, Idaho that recovered new taxa from stoneflies (Plecoptera), mayflies (Ephemeroptera), and black flies (Simuliidae, Diptera). In addition to range extensions, we also improve our understanding of the extent and range of morphological features of certain species of gut fungi. Species of Trichomycetes may play a valuable role in lotic foodwebs, with trophic implications that are unknown to date. A robust and complete classification of these organisms will help answer questions about their roles in freshwater ecosystems.