DOES THE HIGH CONCENTRATION OF HUMIC ACID AFFECT THE DECOMPOSER ACTIVITY OF AQUATIC HYPHOMYCETES IN LOW ORDER STREAMS?

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Leaf litter decomposition in low order streams is primarily mediated by microbes, especially aquatic hyphomycetes. These fungi rapidly colonize fallen leaves and produce a range of extracellular enzymes capable of cellulose, hemicellulose, pectin, xylose and other leaf compounds. In this way, aquatic hyphomycetes mineralize organic carbon and nutrients, convert them into biomass and promote the release of fine litter particles, causing litter mass loss. Therefore, aquatic hyphomycetes perform an important role in energy and nutrient flow in streams. Their activity is affected by several environmental factors (e.g., dissolved nutrients, oxygen concentration, temperature, turbulence, pH) and leaf litter quality. In this study, we tested if the high concentration of humic acids in black waters, important affect fungi activities. Leaves of *Miconia albicans* and *Clusia burlemaxxi* were allocated into fine mesh bags and incubated in clear waters streams (n = 3) and in black water streams (n = 3), respectively. After 15 days of incubation half of the litter bags were transplanted from clear waters to black waters streams and vice versa. Leaf mass loss did not significantly differ between litter bags that had been transplanted and those that remained in the stream of origin for the duration of the study (90 days). Fungal biomass and sporulation decreased in litter bags transplanted from clear water to black water streams. The transplant from black to the clear water streams resulted in an increase of fungal biomass and sporulation rates. Twenty-one aquatic hyphomycete species were identified but only four contributed with more than 90% to the total conidia produced (*Flagellospora curvula*, *Lunulospora curvula*, *Triscelophorus monosporus* and *Heliscus submersus*). In the litter transplanted from the dark water to the clear water streams only spore production by *F. curvula* (decrease) and *T. monosporus* (increase) was affected. Transplants from the clear water to the black water streams resulted in *F. curvula* and *T. monosporus* decrease and *L. curvula* increase sporulation. These results indicate that high humic acids influence the activity of aquatic hyphomycetes in streams.

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