



ASSESSMENT OF LEAF LITTER DECOMPOSITION IN TROPICAL STREAMS UNDER DIFFERENT CONSERVATION CONDITIONS

Marlon Santos Amâncio¹, José Francisco Gonçalves Junior¹, Camila Aida Campos Couto², Renan Rezende³, Guilherme Sena³

¹*Aquariparia-Limnology Lab, Department of Ecology, Institute of Biological Sciences, University of Brasília (UnB), Brasília, Brazil*

²*ADASA—Agência Reguladora de Águas, Energia e Saneamento Básico do Distrito Federal, Brasília, Brasil*

³*Graduate Program in Environmental Sciences, University of Chapecó, Chapecó, Santa Catarina, Brazil*

E-mail: marlonamancio10@gmail.com

Leaf litter decomposition is a fundamental process in aquatic ecosystems functioning, and alterations in environmental integrity driven by anthropogenic activities can substantially influence decomposition rates. In this study, we investigated how leaf litter decomposition varies along a continuous gradient of stream health and land use. We conducted a leaf litter decomposition experiment in tropical streams using litterbags, quantifying mass loss rates and investigating their relationships with environmental variables, land-use metrics, and biotic components. Decomposition exhibited predominantly non-linear responses along the gradient, with the highest rates occurring at intermediate levels of disturbance. Fungal biomass contributed to the decomposition process; however, variation in decomposition rates along the gradient was primarily associated with macroinvertebrate activity in coarse-mesh litterbags. Additionally, decomposition rates were positively related to water temperature, and electrical conductivity. Overall, our findings demonstrate that leaf litter decomposition is sensitive to the degree of stream disturbance, being largely driven by watershed-scale land use, and highlight the importance of continuous, gradient-based approaches for understanding ecological responses in tropical streams.

Palavras-chave: *Decomposition, Environmental disturbance, Stream health*