**Ecology of testate amoebae (Arcellinida, Euglyphida) in subtropical urban ponds, Shenzhen, China**

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Microorganisms play a vital role in the environment, and understanding their ecology is crucial for effectively conserving ecosystems. However, surveys on freshwater microorganisms in urban parks are still limited, making it difficult to obtain an accurate idea of biodiversity in urban environments. This study aims to investigate the ecology of testate amoebae (Arcellinida and Eugliphida) in three adjacent subtropical ponds in Yanziling Park, Shenzhen, China. Sampling was conducted in June 2022, and we collected a total of 60 samples (30 water and 30 surface sediment samples) to analyze the diversity and community composition variations and environmental factors that influence testate amoeba communities. The Sloan neutral community model will demonstrate that stochastic processes predominantly drive the community variation of testate amoebae in urban ponds. Based on the Sloan neutral community model, the migration rate for testate amoeba communities will potentially provide insight into how the stochastic balance between loss and gain of testate amoebae (e.g., stochastic births and deaths) critically shapes community assembly and generates specific niches. This research will significantly enhance our understanding of the ecological patterns of water and sediment-associated microbial communities in urban environments.

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