**Determinants of bacterial community composition in subtropical endorheic urban ponds**

***Cao L.1***

*Student, 2nd year of the Master program “Global Change and Novel Ecosystems”*

*1Faculuty of Biology, Shenzhen MSU-BIT University, Shenzhen 518172, China*

*E-mail:* *..........**.......*

Microbial communities play a pivotal role in the productivity of aquatic ecosystems. However, little is known about the composition and distribution of bacterial communities in urban ponds, which are an important bioresource in urban parks. In this research, we conducted shotgun metagenomic surveys of bacterial communities based on 30 water samples that were collected from a subtropical pond in SMBU Park in Shenzhen, China, in August 2022. Environmental variables were also measured. The results will first provide an insight into alpha, beta, and gamma diversity, community compositions, and factors influencing the bacterial communities. The Sloan neutral community model analysis will show the importance of stochastic processes in controlling the bacterial communities. The Stegen null model will show that stochastic processes (e.g., ecological drift) explain a considerably higher percentage of community assembly than deterministic processes, although deterministic processes can be more influential in certain circumstances. The findings will provide new perspectives for understanding the ecological patterns, processes, and mechanisms of bacterial communities in urban ponds, and this will have important implications for protecting aquatic environments in urban areas.

*The authors would like to thank Dr. Pascaline Nyirabuhoro and Dr. Jean Claude Ndayishimiye for their supervision and valuable comments. This work was supported by the Shenzhen Natural Science Foundation (20200828181231001) and the Russian Science Foundation (19–14-00102). This research was performed within the framework of the development program of the Interdisciplinary Scientific and Educational School of Lomonosov Moscow State University, “The Future of the Planet and Global Environmental Change.”*