

Monitoring and controlling cyanobacterial blooms in tropical aquatic ecosystems

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Eutrophication of continental surface waters is an environmental problem that affects water quality and biodiversity. In the Ciano-Control project, we tested the effectiveness and applicability of a technique for controlling eutrophication and cyanobacterial blooms in tropical systems, based on combining coagulants and phosphorus (P) adsorbents in the solid phase, called Floc and Lock (F&L). We conducted experiments in mesocosms in two water types (fresh and brackish) and monitored limnological conditions, the occurrence of cyanobacterial blooms, and planktonic communities. Monitoring the occurrence of cyanobacterial blooms and planktonic communities showed that the processes are dynamic and that the use of F&L can be an alternative. We conclude that the F&L technique can be a promising alternative for mitigating cyanobacterial blooms in surface waters, as it is highly efficient at removing biomass and phosphorus and minimises negative impacts on aquatic communities. Furthermore, the technique enables the use of cyanobacterial biomass as a source of bioactive compounds with potential pharmacological applications. The project opened new perspectives for advancing scientific and technological knowledge in cyanobacteria treatment and prevention, as well as in the management of lakes and reservoirs.

Palavras-chave: eutrofização; cianobactérias; fósforo; Floc and Lock; biotecnologia verde.