



4th EUGLOH Plant Science Meeting

8th Meeting in Functional Biology and Biotechnology of Plants

BOOK OF ABSTRACTS

Oral Presentations & Poster Presentations



*P2

Enhancing Water Reuse at a Local Scale: A Constructed Wetland Case Study

Magalhães, J.^{1*}, Dolbeth M.¹, Arenas F.¹, Pereira S.², Tsiamis G.³, Ntougias S.⁴, Calheiros, C.¹

*joaopedmagalhaes@gmail.com

¹Interdisciplinary Centre of Marine and Environmental Research (CIIMAR/CIMAR), University of Porto, Matosinhos, Portugal

²Centro de Biotecnologia e Química Fina – Laboratório Associado, CBQF, Universidade Católica Portuguesa, Porto, Portugal

³Department of Sustainable Agriculture, School of Agricultural Sciences, University of Patras, Greece

⁴Department of Environmental Engineering, Faculty of Engineering, Democritus University of Thrace, Greece

Constructed Wetlands (CW), as biological treatment systems, mimic the phytoremediation processes found in natural wetlands in an optimized configuration for the improvement of the water quality. They are considered nature-based solutions (NBS) that may support decentralized wastewater treatment providing several ecosystem services, including enhancing water availability and reducing water-related risks. The present study focuses on the performance and operation assessment of an implemented CW in a rural area that is applied to a tourism unit. Under the Project CIRQUA-Integrated Approaches at Local Scale for Enhancing Water Reuse Efficiency and Sustainable Soil Fertilization from Wastewater's Recovered Nutrients, it is envisaged the upgrade of this CW using technological achievements, such as nanostructured filters and photocatalytic modules, precision irrigation principles, sensors and automation in operation and the integration of advanced artificial intelligence (AI) tools. Wastewater quality assessment and biodiversity characterization are being carried out in order to evaluate the upgrading of the system. Acknowledgments: This study integrates the project, entitled "Integrated Approaches at Local Scale for Enhancing Water Reuse Efficiency and Sustainable Soil Fertilization from Wastewater's Recovered Nutrients", Grant agreement No. 2321, Call 2023 Section 1 Management of Water IA, part of the PRIMA programme supported by the European Union.