



TOXICROP

TOXICROP NEWSLETTER 5

July 2023

CYANOTOXINS IN IRRIGATION WATERS: Surveillance, Risk Assessment, and Innovative Remediation Proposals

TOXICROP aims: to cover knowledge gaps and concerns raised related with the use of raw waters contaminated with cyanobacteria and cyanotoxins in crop irrigation. Research and innovation activities will be developed to (a) assess the risk of use of eutrophic waters in agriculture; (b) development of low-cost technologies of water treatment and (c) improve the detection and quantification of cyanotoxins in water, soil and plant materials

TOXICROP || Events

ORGANISED

TOXICROP Advanced course

Annual (PhD) Summer Course on Treatment Wetlands for Water Pollution Control

Date: 18-24 June 2023

Organizer: Aarhus University (AU)

Venue: Aarhus, Denmark

Aarhus University (AU) organized one more edition of the biannual PhD summer course on Treatment Wetlands for Water Pollution Control. The 2023 edition took place between 18 and 24 June at the Universities' Marine Biological Station, located at the Rønbjerg Harbour. The course counted with 10 students originally coming from very different parts in the world such as India, Colombia, Canada or France. Several topics were covered, among others, water quality and characteristics; wetland hydrology, hydraulics, design and kinetics; urban runoff, CSO, domestic and industrial systems; systems in the tropics and other case studies; or emerging pollutants removal where both cyanotoxins and antibiotics received a special coverage. The week included also presentations by the different course participants, namely Guna Bavithra (CIIMAR) and Celene Osório (UTP) that shared some of their results from their tasks within TOXICROP.

Funded by the European Union



This project has received funding from the European Union's Horizon 2020 research and innovation programme under the Marie Skłodowska-Curie grant agreement No 823860

The classroom sessions were complemented by a full day field trip to 6 sites seeing more than 5 different types of wetland systems.



TOXICROP webinar

Title: Cyanobacterial Toxins: Toxins Production and Risk

Date: 12 April 2023

Organizer: Toxins, MDPI

Venue: Online

On 12 April 2023, MDPI and the journal Toxins organized a webinar of the Toxins series, entitled “Cyanobacterial Toxins: Toxins Production and Risk Assessment”. The webinar focused on cyanotoxins’ impacts, namely on irrigation waters, and on the recent cyanotoxin reports uncovered in Portugal. Chair and Keynote Speakers were Prof. Vitor Vasconcelos, Department of Biology, Faculty of Sciences, University of Porto; Dr. Alexandre Campos and Dr. Cristiana Moreira, from CIIMAR.



TOXICROP seminars

Title: Introduction to proteomics

Date: 20 February 2023

Venue: Cady Ayyad University, Marrakesh, Morocco

Funded by the European Union



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The researcher from CIIMAR, Alexandre Campos visited the colleagues from Cady Ayyad University (UCA) In February 2023 and performed several dissemination activities including seminars to students and professors from UCA, in the field of proteomics and toxicology.



TOXICROP || Scientific Missions

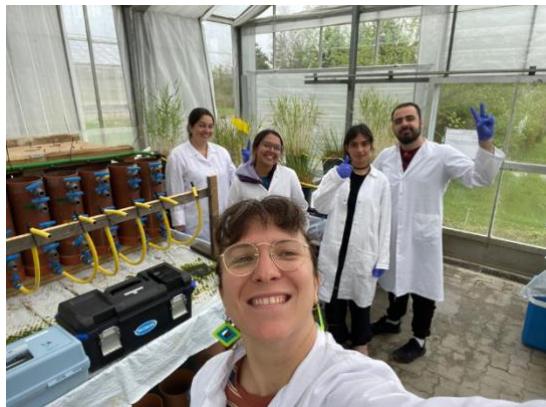
ORGANISED

Denmark (AU) - Colombia (INVEMAR and UTP)

This year of 2023 has been packed with exchange missions between the partners from Aarhus University (AU), INVEMAR and UTP. From January till April 2023 Alba Martínez i Quer, a PhD student sent from AU completed three and a half months of stay at UTP to carry mesocosms studies of cyanotoxins removal using constructed wetlands. During February, Pedro Carvalho and Carlos Arias from AU joined Alba in Colombia to help setting up the mesocosms, as well as to do some lectures and seminars related to nature-based solutions and water management with UTP and INVEMAR.

During the summer, Aarhus University hosted a total of four Colombian colleagues: two from INVEMAR and two from UTP. The first visit was from Olga Díaz (INVEMAR) that came to the AU Risø campus to get training on LC-MS/MS methodologies, including quantification methods for cyanotoxins in different environmental samples. Following her, Celene Osorio (UTP) visited AU main campus for training in different methodologies for nutrients analysis in water samples and measure her master thesis samples. Lina Mosquera (UTP), a PhD student from UTP, came to AU for training in different molecular techniques. All colleagues during their stays, also assisted Alba and her mesocosms experiments running in Denmark. Lastly, Julián Franco Angulo a researcher from INVEMAR, spent the whole August supporting the mesocosm experiments in Aarhus simulating a bloom (experiments including cyanotoxins and cell removal).

All in all, everyone has gained new knowledge while at the same time pushing forward in the research work of TOXICROP.



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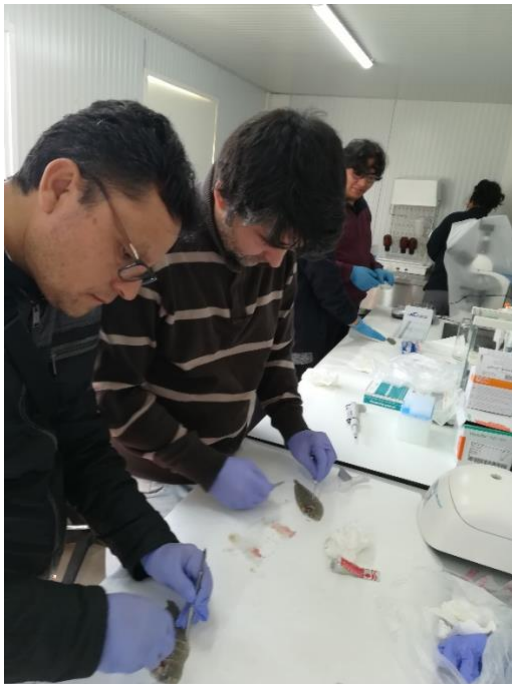
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Matosinhos - Portugal

Venue: CIIMAR

Date: Jan-Feb 2023

In January and February 2023 CIIMAR hosted professors Armando Arenazas and Cesar Ranilla, from the National University of San Agustín de Arequipa. During this period, the Professors joined and contributed in several activities taking place at CIIMAR, these included bioassays with fish and biological sampling, as well as training in biochemical and molecular techniques (DNA extraction and gene amplification by PCR, proteomics). Researchers had the opportunity to visit the CIIMAR collection of microorganisms (LEGE-CC), meet with CIIMAR researchers, discuss research interests, establish new synergies and collaborations, and set the plan for the work to be carried out next year in the framework of toxicrop project. Seminars were organized at CIIMAR. Analyses were carried out to support the characterization of the species of cyanobacteria from the Andes regions, Peru.



Matosinhos - Portugal

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Venue: CIIMAR

Date: May-August 2023

CIIMAR and NOSTOC hosted in the last months several young stage researchers. Cristina Plata, a phd student from University of Seville (USE) was in NOSTOC and CIIMAR Implementing bioassays for detection of toxic algae. Furthermore, Elshaimaa Hamouda, from Sohag University, Egypt, visited CIIMAR to learn and gain skills in cyanobacteria identification (morphological and molecular analysis), cyanobacteria culture and isolation. The student was able to learn and practice immunoassay (ELISA) to detect and quantify cyanotoxins and to work in her own samples. Mohammed Haida, a phd student from Cady Ayyad University, Morocco, was in CIIMAR to develop part of this phd research project. The student learned about proteomics research and methodologies and applied FASP methodology to his own project. The work is ongoing, is being analyzed by high-throughput mass spectrometry. The students, at the end of their mission, presented their work to CIIMAR colleagues.



TOXICROP || Publications

Latest Publications

Aimee Valle-Pombrol, Angel Moreira-González, Dany Domínguez Pérez, Augusto Comas-González, João Silva, Cristiana Moreira, Alexandre Campos, Vitor Vasconcelos. Non-specific cyanobacteria bloom and microcystin detection in Abreus reservoir, Cienfuegos, Cuba. MOL2NET, 2022, 7, ISSN: 2624-5078. <https://sciforum.net/manuscripts/14345/manuscript.pdf>.

TOXICROP || NEWS

TOXICROP || Upcoming Events

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Bruges Meeting & Convention Centre, Belgium

10th International Symposium On Wetland Pollutant Dynamics and Control

10 – 14 September 2023 | Bruges, Belgium.

WETPOL (Wetland Pollutant Dynamics and Control) is a biannual international conference bringing together wetland scientists, engineers and practitioners working on wetland ecosystem services, including water quality improvement, climate regulation, and flood control. The conference goal is to improve our understanding of the role wetlands perform in processing nutrients and contaminants, and to discuss and demonstrate how restored and constructed wetlands in the future. <https://wetpol.org/>.



The 57th Congress of the European Toxicologists and European Societies of Toxicology (EUROTOX2023) is taking place in September 10-13, 2023, in Ljubljana, Slovenia. The event comprises a highly inspiring programme covering all aspects of modern toxicology. <https://www.eurotox2023.com/>



20th International Conference on Harmful Algae (ICHA2023) in take place in Hiroshima, 5-10 November 2023. The event aims at dissemination of recent contributions to the HAB knowledge from all over the world. The theme of the conference will be "HAB Science and Human Well-being". The goal is to exchange relevant scientific information towards a greater understanding of HAB mechanisms, better and timely predictions of HAB occurrences and mitigating their negative impacts. <https://icha2023.org/>

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