



TOXICROP

TOXICROP NEWSLETTER 3

July 2022

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 workshops

Cianobacteria y cianotoxinas un problema para los ecosistemas acuáticos y un reto para la gestión integral del recurso hídrico en zonas costeras

Location: Santa Marta, Colombia

Date: 14-18/03/2022

Organizer: INVEMAR

This workshop had 30 participants, including research staff, academic partners, and local and regional stakeholders. Issues dealing with water quality, eutrophication and cyanotoxins contamination were discussed, as well as the usage of constructed wetlands, mangroves and other nature-based solutions for water treatment and the protection of water resources.

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

Soluciones Basadas en la Naturaleza para la gestión del agua y circularidad

Location: Pereira, Colombia

Date: 8-10/03/2022

Organizer: UTP

UTP held a 3-day workshop for local PhD, MSc students and local stakeholders, with an engineering and environmental administration background, to promote the use of constructed wetlands. A total of 40 persons participated in this workshop that included a technical visit to the two wastewater treatment plants at UTP campus that use constructed wetlands to provide secondary and tertiary treatment to the wastewater generated at the university.

Contaminantes Emergentes en Ecosistemas Acuáticos: Presencia, Impacto y Ecotoxicidad

Location: Arequipa, Peru

Date: 25-27/06/2022

Organizers: UNSA, Científica Peruana

This workshop was organized to all research staff from UNSA (BSc, MSc, senior researchers and professors) and stakeholders, and was focused on the training in methodologies for research in ecotoxicology. The workshop was divided in 2 sessions comprising online seminars (over 40 attendants per day) and laboratory training (15 participants). During the laboratory training, the participants learned international guidelines on animal experimentation, using water flea *Daphnia magna* or guppy, *Poecilia reticulata* and also plants (lettuce) as biological models.



TOXICROP || Scientific Missions ORGANISED

Pereira and Santa Marta - Colombia

Location: Pereira and Santa Marta - Colombia

Venue: UTP and INVEMAR

Date: 05/03/2022 – 20/03/2022

Funded by the European Union



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In March 2022, the partners of the project TOXICROP, AU, CIIMAR, UTP and INVEMAR, planned two intense weeks of meetings and workshops in the Colombian cities of Pereira and Santa Marta aiming at capacity building, and to work on issues related with water management and treatment. A large focus was placed on the usage of constructed wetlands and issues related with eutrophication of water bodies and cyanotoxins contamination. CIIMAR and AU were involved in the organization of two workshops held in Pereira and Santa Marta. This event included, as participants, young researchers, academic staff and stakeholders. The mission yet comprised visits to wastewater treatment plants and Ciénaga Grande de



Santa Marta and the mangrove restoration projects that are taking place in this natural ecosystem.

Arequipa - Peru

Location: Arequipa - Peru

Venue: UNSA

Date: 01/05/2022 – 31/05/2022

The researchers Alexandre Campos and Mário Araujo from CIIMAR, visited the Department of Biology, University of San Agustín de Arequipa (UNSA), and the partner Científica Peruana, in May 2022. The mission aimed to continue the research work on the assessment of water quality in lakes El Pañe and Aguada Blanca, together with the research team led by Prof. Cesar Ranilla from UNSA. The collaboration was very fruitful, involved several young researchers (Bachelor and master students) and professors from UNSA. A 3-day workshop "Contaminantes Emergentes en Ecosistemas Acuáticos: Presencia, Impacto y Ecotoxicidad" was organized during this mission, and the research team had the opportunity to visit and meet Sedapar and Autodema, the two companies responsible for production of drinking water in the region of Arequipa and management of Aguada Blanca and El Pañe lakes.



Funded by the European Union



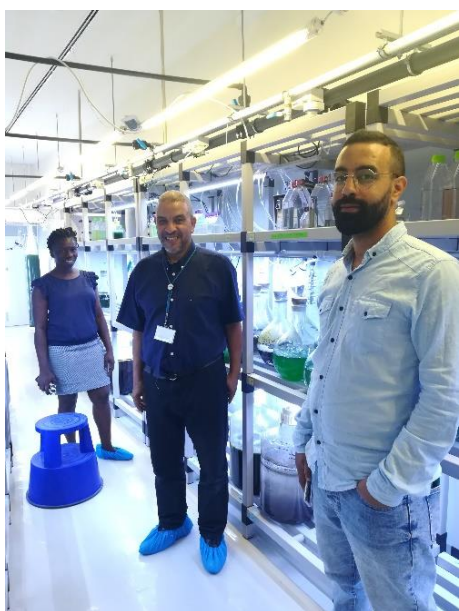
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Matosinhos - Portugal

Location: Matosinhos - Portugal

Venue: CIIMAR

Date: 01/07/2022 – 31/08/2022



Staff members from University Cadi Ayyad, from Marrakesh, Morocco, are visiting CIIMAR for developing research work in the framework of WP4 and WP6, and to be trained in molecular biology techniques and analytical chemistry namely in cyanotoxins analysis. Aba Roseline Prisca is working in the MSL technology and at CIIMAR is doing complementary investigations for assessment of the efficiency of this technology to remove cyanotoxins from the water, and characterize the microbial communities involved in microcystins degradation. Haida Mohammed is also a PhD student from UCA, and

is working on the assessment of the use of contaminated water in crop development. At CIIMAR he will employ molecular biology and proteomics to disclose Impairments in plants. Doctor Abdessamad Hejjaj joined the UCA team visiting CIIMAR, for training in LC-MS techniques and toxin analysis.

TOXICROP || Publications

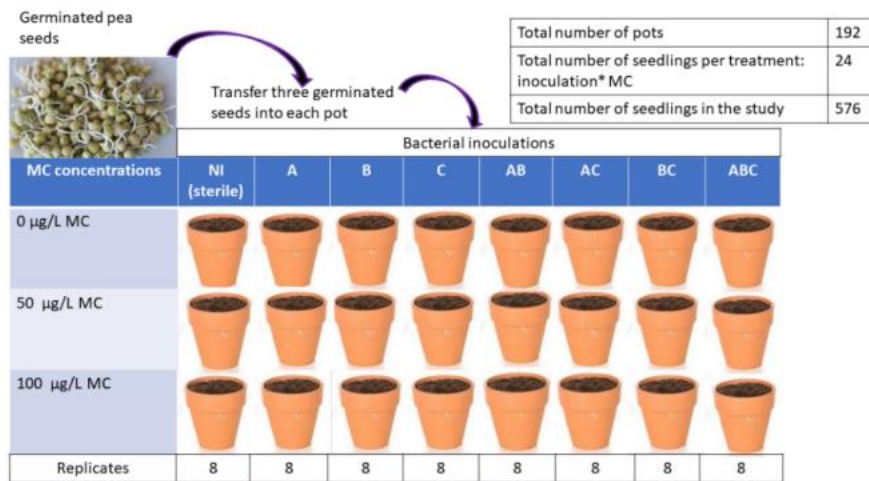
Latest Publications

Mugani R, El Khalloufi F, Redouane M, Haida M, Zerrifi SA, Campos A, Kasada M, Woodhouse J, Grossart H-P, Vasconcelos V, Oudra B. Bacterioplankton Associated with Toxic Cyanobacteria Promote *Pisum sativum* (Pea) Growth and Nutritional Value through Positive Interactions. *Microorganisms* 2022, 10, 1511; <https://doi.org/10.3390/microorganisms10081511>.

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From *Microorganisms* 2022, 10, 1511

TOXICROP || NEWS

CIIMAR and UNSA lead water quality study in Peru, Arequipa region

Link: https://www.facebook.com/plataformahablandodeciencia/videos/703956377381907/?extid=CL-UNK-UNK-UNK-AN_GKoT-GK1C&ref=sharing

TOXICROP || Upcoming Events



17th International Conference of the IWA Specialist Group on Wetland Systems for Water Pollution Control Meeting will be held in 6-10th November, 2022 at Bangkok, Thailand. For more information, visit: <http://www.icws2022.com/>



XXIV Spanish and VIII Iberoamerican congress of Toxicology, to be held in Córdoba, Spain in 9 -11 November 2022. For more information, visit <https://www.congresoaoetox2022.com/>

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