SmaCuMed PRIMA project :

Smart irrigation cube for sustainable agriculture in the Mediterranean region

The International Conference on WATER-ENERGY-FOOD-ECOSYSTEM NEXUS in the Mediterranean Region

Tuesday 15 – Friday 17, November 2023

The Mohammed Vi Museum of Water Civilization in Morocco, Marrakech (Morocco)

Topics

- Bioresources valorization
- Climate Change and Water Resources
- Ecotoxicology & Environmental Remediation
- Environmental Chemical Engineering
- Environmental modelling
- Farming systems
- Food Characterization and Quality
- Food losses: innovations and waste management
- Food Security & Food Safety and Toxicology
- Governance and Policy
- Renewable energy and energy efficiency
- Sustainable Agriculture and Water Efficiency
- Terrestrial and Aquatic Ecosystems
- Water Pollution and Water Quality
- Water Technologies and Innovations

Scientific committee

- Prof. Abdelilah EL ABBASSI (Cadi Ayyad University, Morocco)
- Prof. Fatima JAITI (Moulay Ismail University, Morocco)
- Prof. Jan HOINKIS (Karlsruhe University of Applied Sciences, Germany)
- Dr. Edgardo Canas Kurz (Karlsruhe University of Applied Sciences, Germany)
- Prof. Khalid BEKKOUCHE (Cadi Ayyad University, Morocco)
- Prof. Azeddine SEDKI (Cadi Ayyad University, Morocco)
- Prof. Yassir BARKOUCH (Cadi Ayyad University, Morocco)
- Prof. Galanakis M. Charis (University of Taif, Saudi Arabia)
- Prof. Laila EL BOUZIDI (Cadi Ayyad University, Morocco)
- Prof. Mohamed MAATALLAH (Cadi Ayyad University, Morocco)
- Prof. Faissal AZIZ (Cadi Ayyad University, Morocco)
- Prof. Mohamed FARISSI (Sultan Moulay Sliman University, Morocco)
- Prof. Noamane TAARJI (Mohammed VI Polytechnic University, Morocco)
- Prof. Aayah HAMMOUMI (Cadi Ayyad University, Morocco)
- Prof. Khalid FARES (Cadi Ayyad University, Morocco)
- Prof. Abderrahime ALAHYANE (Higher Institute of Nursing and Health Technologies, Morocco)
- Dr. Makram ANANE (Centre des Recherches et des Technologies des Eaux, Tunisia)
- Dr. Marwa BEN SAAD (Centre des Recherches et des Technologies des Eaux, Tunisia)
- Prof. Ilyes DAMMAK (University of Kairaouan, Tunisia)
- Dr. Jihane RAITI (Cadi Ayyad University, Morocco)
- Dr. Ing. Amal ZAYEN (Center of Biotechnology of Sfax, Tunisia)
- Dr. Ahmed KHADRA (Cadi Ayyad University, Morocco)
- Dr. Ulrich HELLRIEGEL (Karlsruhe University of Applied Sciences, Germany)
- Dr. Wafa MISRAR (Cadi Ayyad University, Morocco)
- Prof. Majdouline BELAQZIZ (Cadi Ayyad University, Morocco)
- Dr. Abiy S. KEBEDE (Brunel University London, UK)
- Prof. Kholoud KAHIME (Cadi Ayyad University, Morocco)
- Prof. Mohamed EL YAMANI (Cadi Ayyad University, Morocco)
- Prof. Charaf HAJJAJ (Cadi Ayyad University, Morocco)
- Prof. Majida LAHROUNI (Cadi Ayyad University of Marrakech, Morocco)
- Prof. Moussa HASSIMI (University Boubakar Ba of Tillaberi, Niger

Organizing committee

- Prof. Abdelilah EL ABBASSI (Cadi Ayyad University, Morocco)
- Prof. Majdouline Belaqziz (Cadi Ayyad University, Morocco)
- Prof. Fatima JAITI (Moulay Ismail University, Morocco)
- Prof. Jan HOINKIS (Karlsruhe University of Applied Sciences, Germany)
- Dr. Edgardo Canas (Karlsruhe University of Applied Sciences, Germany)
- Dr. Ulrich HELLRIEGEL (Karlsruhe University of Applied Sciences, Germany)

WEFE2023

The SmaCuMed International Conference on Water-Energy-Food-Ecosystem Nexus in the Mediterranean (WEFE2023) will take place from 15th to 17th November 2023 in the Mohamed VI Museum of Water Civilization in Morocco (Marrakech, Morocco).

The SmaCuMed WEFE Nexus Conference is organized by the Cadi Ayyad University of Marrakech (Morocco) and the Karlsruhe University of Applied Sciences (Germany), under the framework of the PRIMA project SmaCuMed (www.smacumed.eu).

SmaCuMed "Smart irrigation Cube for sustainable agriculture in the Mediterranean region" is a joint research project from the European Union's EU-Prima initiative - A joint program focused on developing and applying solutions for food systems and water resources in the Mediterranean basin.

The Water-Energy-Food-Ecosystem Nexus (WEFE Nexus) approach highlights the interdependence of water, energy and food security and ecosystems – water, soil, and land – that underpin that security. The Nexus approach identifies mutually beneficial responses that are based on understanding the synergies of water, energy, and agricultural policies. It also provides an informed and transparent framework for determining the proper trade-offs and synergies that maintain the integrity and sustainability of ecosystems.

The Conference focuses on the Mediterranean dimension, but it is open to participants from outside the region who share the same interests and wish to learn from the Mediterranean experience.

Honorary committee

- Belaid BOUGADIR (President of the Cadi Ayyad University)
- El Hassan EL MOUDEN (Dean of the Faculty of Sciences Semlalia)
- Moha TAOURIRTE (Dean of the Faculty of Sciences and Technologies of Marrakech)
- Driss BELKHAYAT (Directeor of the Innovation City of the Cadi Ayyad University)
- Abdennabi EL MANDOUR (Director of the Mohamed VI Museum of Water Civilization in Morocco)

Partner Journals

Official Partners

For the updated conference agenda please scan the following QR Code.

SCAN ME

Publishing Partners SPRINGER NATURE

Visit the conference website: https://indico.marwan.ma/e/wefe2023

Contact Prof. Abdelilah EL ABBASSI a.elabbassi@uca.ma/ Dr. Edgardo Canas Kurz edgardokurz.hka@gmail.com

Modeling the Influence of Wastewater Treatment Plant Implementation on Enhancing Surface Water Quality

Abdelillah Bouriqi[a,b*], Naaila Ouazzani[a], Jean-François Deliège[b]

(a) EauBiodiCc laboratory, Water, Biodiversity and Climate Changes, Fac. Sciences Semlalia, Cadi Ayyad University, Marrakech, Morocco.

(b) PeGIRE laboratory, RU FOCUS-Aquapôle, Liège University, Liège, Belgium.

(*) a.bouriqi.ced@uca.ac.ma

Abstract

River pollution is a major concern worldwide and in urban areas, untreated wastewater is one of the main contributors to this problem. This study aims to highlight the modeling of the impact of the installation of wastewater treatment plants (WWTPs) on improving the quality of surface waters. The physicochemical parameters of rivers in the ZAT watershed were evaluated through experimental monitoring and surface water quality modeling. The study also evaluated the effectiveness of co-treatment scenarios involving different types of wastewater, including urban wastewater, slaughterhouse wastewater, leachate, and olive mill wastewater. The researchers used a combination of field measurements and computer simulations using the PEGASE model to assess water quality depending on treatment efficiency.

A significant correlation was obtained between measured and simulated values, after the calibration of some model parameters. The model performance showed good statistical agreement for all parameters studied. The outcomes demonstrated a 66.89% improvement in river quality thanks to wastewater treatment before release. River quality was improved by 85.24% by co-treatment when the olive oil manufacturing effluent was diluted by 0.5% (v/v). The study showed that co-treatment of several types of wastewater could significantly improve surface water quality, but careful control of the dilution level of the oil mill wastewater to 0.5% (v/v) was necessary to maintain better treatment capacity. These results have important implications for the planning and implementation of wastewater treatment systems in areas with a variety of discharge types and provide valuable data for decision-makers and stakeholders involved in water resource management.

Keywords: River water quality; modeling; PEGASE; Co-treatment; wastewater treatment plant; wastewater; urban; slaughterhouse; leachate; olive mill.