NIAGARA

Newsletter

1st edition

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WELCOME TO THE NIAGARA NEWSLETTER!

NIAGARA is an EU-funded project under the Horizon Europe program, launched in November 2023. Our mission is to tackle the critical issue of water pollution by providing innovative, holistic solutions for detecting, monitoring, and removing contaminants in drinking water treatment plants (DWTPs). Over the next four years, we will develop advanced tools to safeguard water quality.

Click *here* and watch our first introductory video to learn more about the project

NIAGARA aims to develop innovative solutions to the challenges faced by DWTPs and integrate them into a comprehensive pilot demonstrator allowing DWTPs to monitor and remove chemical and biological pollution present in European drinking water.

Our key objectives include:

Development of a manufacturing plan for Multi-analyte Biosensors (BWP) designed to detect and monitor chemical and biological water pollutants, specifically targeting Bisphenol A, *Helicobater pylori*, imazalil, and ibuprofen/paracetamol.

Design and development of a manufacturing scheme for an Immobilized Enzymatic Degradation System (IEDS) aimed at eliminating chemical pollutants and pathogens from drinking water.

Safe disinfection method based on UV/TiO2 photocatalysis with comprehensive consideration of Disinfection By-Products (DBP) associated to our 4-analytes panel.
Pilot demonstration of integrated solutions: Demonstrate our solutions at pilot level and their combined use in an innovative IEDS-UV/TiO2 tandem.

Hydraulic modeling based on Smooth Particle Hydrodynamics (SPH): Using data from our biosensors, we will create a fast and cost-effective hydraulic model that predicts the spread of pollutants and unregulated DBPs. This model will be part of a real-time risk management strategy within Valencia's drinking water distribution network.

OUR CONSORTIUM

ITENE RESEARCH CENTER · ICN2 Institut Català de Nanociència i Nanotecnologia · CYRIC · ÆGIR · Kneia · SEMIDE EMWIS

ZVT Agricultural Research, Ltd. Troubsko · emivasa Ajuntament de València · aguas de valencia · gamaser · FTPO Faculty of Polymer Technology

LATEST NEWS & INSIGHTS

We've been actively sharing updates and articles on the NIAGARA project website. If you're curious to dive deeper into our research and findings, check out these recent publications:

New Threats to Water Quality: The Rise of Emerging Pollutants

Emerging contaminants (ECs), now under scrutiny due to their potential adverse effects on the environment and human health, are found in trace amounts in water sources. The NIAGARA project addresses this concern by focusing on four specific emerging pollutants: bisphenol A (BPA), imazalil, ibuprofen, and paracetamol.

Read the full article by clicking here

Addressing the Growing Crisis of Drinking Water Pollution: How the NIAGARA Project is Paving the Way for Safer Water

Emerging contaminants (ECs), now under scrutiny due to their potential adverse effects on the environment and human health, are found in trace amounts in water sources. The NIAGARA project addresses this concern by focusing on four specific emerging pollutants: bisphenol A (BPA), imazalil, ibuprofen, and paracetamol. NIAGARA aims to contribute to the monitoring and remediation of these pollutants in Drinking Water Treatment Plants (DWTPs) through the development of biosensors, an enzymatic degradation system, and a UV/TiO2 photocatalysis-based disinfection method.

Read the full article by clicking here

Understanding the Water Cycle: From Nature to Potable Water

Have you ever wondered about the journey water takes to become safe for drinking? In this post, we will explore the fascinating process of water potabilization.

Read the full article by clicking here

RELATED PROJECTS

H2OforAll: Pioneering Solutions for Safer Drinking Water

H2OforAll, a Horizon Europe-funded initiative, tackles the growing concern of Disinfection By-Products (DBPs) in drinking water systems. The project focuses on developing cutting-edge sensor technology and advanced modeling techniques to monitor DBP formation and distribution in real-time, enabling the identification of high-risk areas within water distribution networks.

The project seeks to assess the main sources of DBPs by developing fast, cost-effective, and accurate sensor devices. These sensors will monitor DBP formation and distribution in real-time throughout drinking water distribution systems, providing crucial data to predict high-risk areas. In addition, the project will propose innovative water treatments designed to remove DBPs or prevent their formation during disinfection processes.

At the heart of the project is creating a Central Knowledge Base—a repository of reliable data on DBPs' occurrence across the European Union. This database will serve to increase awareness among society and governmental organizations about the risks associated with DBPs in drinking water and will contribute to the development of new policy responses and guidance.

One of the major goals of H2OforAll is to address the complexity of monitoring DBPs in large water distribution networks. The project is currently conducting a real-world case study in Coimbra, Portugal, where the methodology is being tested in a calibrated water distribution network.

For more information on the H2OforAll project and its latest developments, visit H2OforAll Website by clicking ***here***.

UPCOMING ACTIVITIES

Exciting times ahead! In the coming months, the NIAGARA consortium will be gathering in Prague for our second face-to-face meeting, marking the first year of the project. This meeting will be crucial for evaluating our progress and setting the stage for upcoming milestones. We look forward to keeping you updated on our progress and achievements as we work towards cleaner, safer water for all.

Thank you for reading our newsletter!

Visit our website and share our advances with your network!

niagara-project.eu

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