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AQUACYCLE

e-Newsletter
Special Issue May 2020

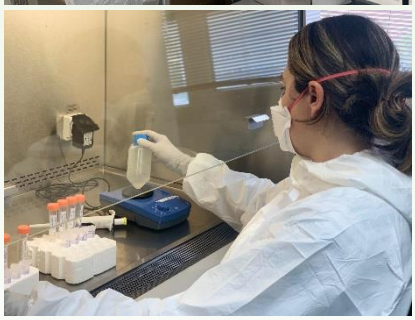
Towards Sustainable Treatment and Reuse of Wastewater in the Mediterranean Region

Special Issue covering Interviews on COVID-19 and the Urban Water Cycle

AQUACYCLE Teamleader Pedro Simón Andreu has been invited in our first interview to explain how the monitoring of domestic wastewater can serve as an early indicator of the prevalence of COVID-19 in a community.

Pedro Simón Andreu is Technical Director of the Regional Entity for Wastewater Sanitation and Treatment in Murcia (**ESAMUR**), Spain:

'***With the knowledge that SARS-CoV-2 had been found in stool samples of COVID-19 patients, we were worried because wastewater could be a source of transmission of the illness. We began to analyse the wastewater in early March 2020 in six WWTPs in the Murcia Region and virus RNA was found in many samples of untreated wastewater, even in cities where no cases had been identified yet by the health authorities. No traces of the virus RNA were found in the samples of treated effluent.***'



Analysing wastewater samples for SARS-COV-2 RNA

A similar study on wastewater in Paris demonstrated the detection of the viral genome before the exponential phase of the epidemic. Does this corroborate your research findings?

'***Yes, a few studies have been made worldwide with similar results. It means that it could be an excellent early warning tool to forecast an outbreak of the disease, creating a valuable lead time for Health Authorities to implement actions to slow the spread of the disease. Now, we should try to perfect this tool!***'

Would you agree that this monitoring can lead to a quantitative estimate of the population affected by COVID-19?

'In my point of view, a direct correlation remains challenging. For example, domestic wastewater is diluted with other water sources that are free of viric RNA load, such as rainwater. Also, the environmental conditions in the sewage itself ensure that a portion of virus RNA is degraded on the way to the WWTP. The length of the sewer network or the presence of pumping stations should be taken into account as well. Therefore every sewer system is different and it changes the RNA we measure. But this should not decrease on the importance of this environmental surveillance as an early warning tool or to identify tendencies in the spread of the disease.'

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As these ground breaking research findings brought a much welcome boost during our virtual interview, soon new questions started troubling our minds. Were the treatment plant operators exposed to the virus in the wastewater? As the Region of Murcia witnessed a torrential downpour on March 24, would a situation of overload of a treatment plant cause untreated wastewater to directly enter into the aquatic environment?

AQUACYCLE Innovation Manager, Dr. Vasilios Takavakoglou from the Centre of Research and Technology, Hellas (**CERTH**) responded to our questions in our second interview:

'***Answers to these emerging, open questions require a high level of research funding. Unfortunately, such funding tends to be available only when a major pandemic strikes and then dries up as soon as the situation returns to normal.***'

The Managing Authority encouraged ENI CBC Med funded projects to explore possibilities to quickly and efficiently contribute to the mitigation of the consequences of the COVID-19 emergency. Can you tell us more how this could apply to **AQUACYCLE**?

'***The knowledge that aside from Greece and Spain, also our research partners in Lebanon and Tunisia bring expert staff and laboratory facilities, has indeed motivated us to update several of our planned activities, which are now more strongly focused on microbiological quality aspects.***'

Could you give us specific examples of activities that have been updated?

'***In respect of assessing the treatment efficiency of the eco-innovative APOC technology (e-Newsletter February 2020), we are introducing additional monitoring indicators related to infectious diseases and emerging pollutants related to pharmaceutical compounds that are used to control such diseases. Even if the available budget cannot be increased and thus permits only small scale research activities at lab-level to be added to the original plan, this should pave the way to document the efficiency of APOC and its advantage compared to conventional wastewater treatment systems also in this regard. In addition, a training session for APOC operators has been added on Safety and Hygiene in relation to infectious diseases and COVID-19***.'

Source: SUEZ on Twitter: Meet Enric who works at the wastewater treatment plant near Barcelona. Because the wastewater management must continue, especially during COVID-19, Enric keeps providing a preventive & corrective maintenance of the plant.

Murcia hit by rainfall in excess of 100 Litre/Square metre – Murcia Today Photo: www.euroweeklynews.com/2020/03/24

References

Randazzo et al 2020. SARS-CoV-2 RNA titers in wastewater anticipated COVID-19 occurrence in a low prevalence area. medRxiv preprint doi: https://doi.org/10.1101/2020.04.22.20075200

Wurtzer et al 2020. Time course quantitative detection of SARS-CoV-2 in Parisian wastewaters correlates with COVID-19 confirmed cases. medRxiv preprint doi: https://doi.org/10.1101/2020.04.12.20062679

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Together we are stronger!

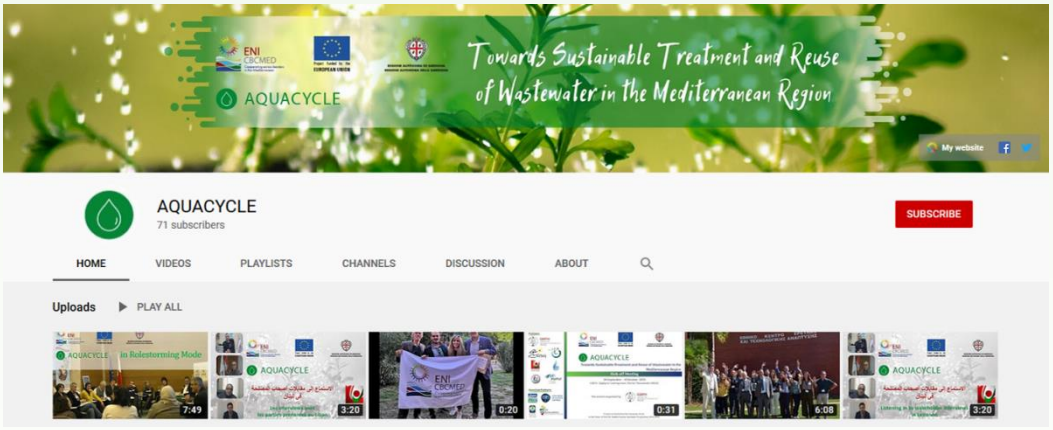
On 18 March 2020, representatives of the five projects which receive EU funding under the '***Water Efficiency***' priority axis of the ENI CBC Med Programme, joined in an online meeting. **AQUACYCLE Project Manager, Dr Konstantinos Plakas** initiated the event with the aim to exchange ideas on how to share project results. The initiative was given prominence on the ENI CBC Med website.

The COVID-19 pandemic featured prominently in the second online meeting, which took place on 12 May 2020, and established a common interest in sharing each individual project's updated action plans in response to the virus outbreak.

The sharing of outcomes, not least those in respect of updated monitoring activities, are expected to bring further synergies to the fore. The mutual aspiration of **AQUACYCLE**, **MEDISS**, **MENAWARA**, **NAWAMED** and **PROSIM** in finding innovative and technological solutions to increase water efficiency and encourage the use of non-conventional water resources brings a real opportunity for each individual project to achieve more by joining forces!

AQUACYCLE Channel on YouTube

With five additional clips since the short video celebrating the **AQUACYCLE Launch**, a dedicated channel was set up on YouTube in April 2020, complete with an art banner designed by Eleanna Pana, CERTH. In less than a month, the channel attracted several hundred views. Do not miss out on our next video clip by **subscribing to our Channel**!



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For more info please visit us on the ENI CBC Med website & follow us on social media