

## Research project

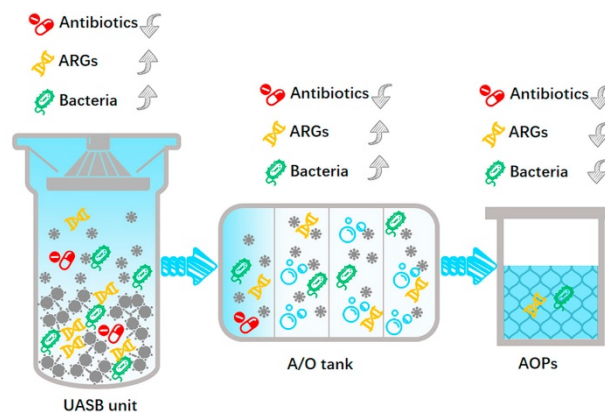
### Wastewater antibiotic resistance removal for a safe water environment

#### Summary

The World Health Organization has deemed antibiotic resistance to be a serious threat to global public health and noted the crucial role the environment plays in increasing this resistance.

Municipal wastewater treatment plants (WWTPs), typically operated by biological processes, are principal reservoirs and hotspots for antibiotic resistance bacteria (ARB) and antibiotic resistance genes (ARG). The high microbial density of activated sludge contributes to genetic transfer in WWTPs and to the dissemination of ARB and ARG (Rizzo et al., 2013).

This study focuses on assessing innovative advanced oxidation processes to reduce the release of ARB and ARG into receiving waters. Different tertiary systems will be tested: UV-LED irradiation, electrooxidation, peracetic acid in order to evaluate their performance and applicability in real wastewater treatment systems. The main goal is to combat the spread of antibiotic resistance for a safe Public Health environment.



#### References

Campo N, De Flora C, Maffettone R, Manoli K, Sarathy S, Santoro D, Gonzalez-Olmos R, **Auset M**. Inactivation kinetics of antibiotic resistant *Escherichia coli* in secondary wastewater effluents by peracetic and performic acids. *Water Research*. **2019**. 25;169:115227.

Rizzo L, Manaia C, Merlin C, Schwartz T, Dagot C, Fatta-Kassinos D. Urban wastewater treatment plants as hotspots for the release of antibiotics in the environment: a review. *Water Research*. **2013** 1;47:957-95.

**Contact:** Dr Maria Auset Vallejo ([maria.uset@iqs.url.edu](mailto:maria.uset@iqs.url.edu))