PhD Candidate Profile

Name:
Popi Karaolia

Research Group:
N/A

Research Centre:
Nireas-International Water Research Center

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Department of Civil and Environmental Engineering

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University of Cyprus, Cyprus

Supervisor(s):
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Funding body:
N/A

Area (field) of study:
Removal of antibiotics and antibiotic resistance by advanced oxidation processes

Thesis Title:

MBR and Advanced Oxidation Processes for the removal of antibiotic resistance and disinfection of urban wastewater.

Abstract:

Wastewater treatment plants are considered as hotspots of antibiotic resistance due to the observed presence of antibiotic residues which exert pressure on bacterial populations, the favourable conditions in influents which may favour the horizontal transfer of antibiotic resistance and due to a general observation that final effluents may contain higher amounts of ARB than the actual influents.

Furthermore, there has been little research regarding alternative control measures of controlling antibiotic resistance in wastewater treatment plants i.e. advanced oxidation processes which have the potential to perform more efficiently in the removal of antibiotic resistant bacteria (ARB) and antibiotic resistance genes (ARG).

Consequently, we have decided to perform a study on the removal efficiency of three advanced wastewater treatment processes, namely Membrane BioReactors (MBRs), solar photo-Fenton treatment and heterogeneous (TiO_2) photocatalysis. After performing the above treatments on real wastewater, we examine the presence of ARB and ARG in the resulting effluents, in the presence of antibiotic residues.

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Collaborations:

N/A

Publications:

P. Karaolia, I. Michael, I. García-Fernández, A. Agüera, S. Malato, P. Fernández-Ibáñez, D. Fatta-Kassinos, "Reduction of clarithromycin and sulfamethoxazole-resistant Enterococcus by pilot-scale solar-driven Fenton oxidation". Science of the Total Environment (468-469) 19-27.

Presentations:

3rd European Conference on Environmental Applications of Advanced Oxidation Processes (EAAOP3). Almeria, Spain, 28-30 October 2013.

3rd International Conference on Advanced Oxidation Processes (AOP-2014). Kerala, India, 25-28 September 2014.

Society of Environmental Toxicology and Chemistry, Europe 25th Annual Meeting (SETAC 2015). Barcelona, Spain, 3-7 May 2015.

Federation of European Microbiological Societies, 6th Congress of Microbiologists (FEMS 2015). Maastricht, Netherlands, 7-11 June 2015.