

Environmental Microbiology Group

Our Team

Responsible: Dr. John Poté

Our Vision and Aims

Our Vision is to understand the anthropogenic influences that affect the water quality with regard to the dissemination of antibiotic resistance bacteria in aquatic ecosystems. Through collaboration with national and international research institutions, our lab is to strive to disseminate knowledge on antibiotic resistance to the public and at global. The aim of our research is to understand the emerging contaminants including (antibiotic resistance, metal accumulation and POPs) in environment using advanced integrated technologies including metagenomics and next generation sequencing.



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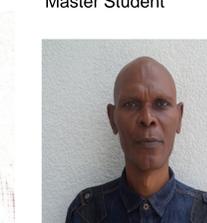
Monica Villegas Gnecco
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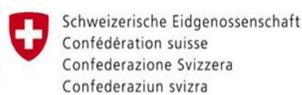
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Our approach and tools

The research program in the environmental microbiology group draws upon the interdisciplinary approach that mainly focusing on (i) the identification of sources as well as risk assessment, (ii) the development of reliable surveillance and risk assessment procedures, (iii) the implementation of technological solutions that can prevent environmental contamination with toxic metals, pathogens, ARB and ARGs (including their characterizations and selection according to the different climatic conditions), in order to reduce the potential human and environmental risks caused by hazardous substances (such as toxic metals), pathogens, ARB, and their ARGs.



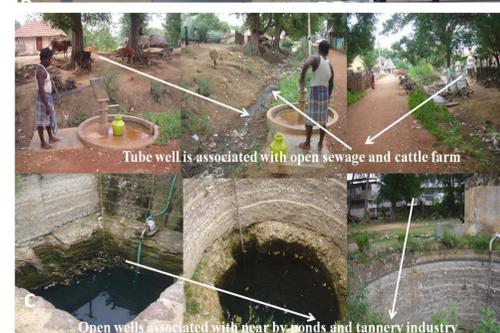
Major Research Topics

Antibiotic resistance of multidrug bacteria resistant according to different climatic conditions

- Assessment of bacterial pathogens with regard to their ARGs from surface water of receiving systems and sediments to study the environmental risks associated with humans and veterinary animals in developing countries: Case of south India and sub-Saharan Africa
- Integrative approach to explore the antibiotic resistance genes and gene transfer elements from river receiving system under tropical conditions

Water, Sanitation and Hygiene in south India and Sub-Saharan African Countries

- Evaluation of microbiological quality of rivers and drinking water from wells according to seasonal variation
- Untreated irrigation water as possible source of bacterial, ARB and ARGs contamination in raw vegetables



Use of contaminated water for domestic purposes (left: washing of cans for consumable water; middle: laundry in river; right: crops irrigation with urban river water Kinshasa, RD: Congo)



Contaminated tropical freshwater ecosystems (lake, rivers and wells) - A to C: Tiruchirappalli, South India; D to E: Kinshasa, RD Congo

North-South collaboration: Gender and capacity Building



Capacity building workshop at Kinshasa

Contact: <http://www.unige.ch/forel/en/microbiologie-environnementale/>

frontiers in Microbiology Laffite et, al. 2016

1 largest journal and #2 most cited open-access journal in Microbiology

