Cofinanciado por:

Designação do projeto | AgriWWater - Uso de água residual reciclada na rega agrícola: avaliação e eliminação do risco microbiológico para uma alimentação segura

Código do projeto | Lisboa-01-0145-FEDER-029586

Objetivo principal:

In the current situation of water scarcity, where water demand frequently exceeds water supply, the reuse of wastewater for irrigation is a valuable sustainable practice. Despite the benefits of wastewater reuse in agriculture, safety issues regarding such practice are still controversial due to the presence of contaminants such as antibiotics (AB) and pathogens (AB resistant bacteria and enteric viruses), that may be ineffectively removed by conventional wastewater treatment plants (WWTP). This project proposes to evaluate the potential of a WWTP for AB resistance dissemination and viruses' propagation; to test novel wastewater treatments and molecular techniques to evaluate the microbiological safety of the produced recycled water. The concept will be tested through the watering of small fruits cultures produced in a greenhouse, and by further analysing the presence of such AB related pollutants and viruses in the water and fruits produced.

Região de intervenção | 100% Lisboa

Entidade beneficiária |Instituto de Biologia Experimental e Tecnológica (IBET); Instituto Nacional de Investigação Agrária e Veterinária, I.P. (INIAV, **I.P.)**

Data da aprovação | 11/01/2018

Data de início | 01/05/2018

Data de conclusão | 30/04/2022

Cofinanciado por:

Custo total elegível | 239.702,14€; Custo elegível INIAV| 39.785,62€

Apoio financeiro total da União Europeia | FEDER – 95.880,86€ (INIAV- 15.914,25€)
Apoio OE| 143.821,28€ (INIAV – 23.871,37€)

Objetivos, atividades e resultados esperados

Project consortium is composed by iBET (the leading partner) and INIAV. iBET team has a long track record on study wastewater microbial communities', water treatment processes, antibiotics identification and virus analysis, while INIAV team has a vast experience in cultivation of small fruits crops in greenhouse environments; thus, the teams complement each other's expertise for the successful project execution. The web of relationships between the characterization of wastewater resistome and virome and the irrigation of fresh produced microbial safe reclaimed water will be analysed in three structured tasks:

- Task 1 aims at achieve a deep characterization of the microbial communities thriving in WWTPs, with special interest in AB resistant bacteria and enteric viruses, by the application of target and untargeted state of the art detection techniques.
- Task 2 aims at the optimization of membrane filtration and UV photolysis processes combination able to effectively eliminate the targets defined in task 1, as well as the new application in the field of molecular techniques to accurate evaluate the presence of such targets on wastewater.
- Task 3 aims at the production of microbiological safe water by the treatments proposed and optimized in task 2, that will be installed at a pilot scale, to produce reclaimed water for irrigation and production of soft fruits.