



Improving current barriers for controlling pharmaceutical compounds in urban wastewater treatment plants

PROJECT COORDINATOR:

Laboratório Nacional de Engenharia Civil, I.P. (LNEC)

BENEFICIARIES:

FFUL (Faculdade de Farmácia da Universidade de Lisboa)
EHS (EHS – Environment and Regional Development Consulting, Lda)
EPAL (Empresa Portuguesa das Águas Livres, S.A.)
AdA (Águas do Algarve, S.A.)
Simtejo (Saneamento Integrado dos Municípios do Tejo e Trancão, S.A.)
FCUL (Faculdade de Ciências da Universidade de Lisboa)
UALG (Universidade do Algarve)

CONTACT DETAILS:

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OBJECTIVES:

LIFE Impetus aims to demonstrate measures for improving PhC removal in urban WWTPs with conventional activated sludge (CAS) treatment. The project will carry out a three-year field test in two Portuguese CAS-WWTPs in water-stressed regions (Lisbon and Algarve). The project will provide guidelines for reliable and sustainable improvement of PhC removal in conventional WWTPs with minimum energy consumption. New adsorbents from local vegetal wastes (carob and cork) and biopolymer coagulants will be compared with commercial products.

A complementary objective is to produce valuable knowledge for water resource protection from PhCs and associated environmental policy. This includes PhC occurrence and concentration, control in WWTPs, bacterial antibiotic resistance and bioaccumulation in clams, a key product in many local economies in Algarve and elsewhere in Europe.

EXPECTED RESULTS:

- A low-cost investment and easy-to-implement solution for improving PhC control in conventional wastewater treatment, while keeping operating costs to a minimum and maximising recovery of resources and energy efficiency.
- Data on occurrence of PhCs in urban wastewaters, which could be used in decision-support systems, such as risk assessment, and future EU policy and legislation on PhC limits in urban wastewater.
- Innovation in methods/practices for improved PhCs control in two CAS aeration regimes (two WWTPs) – Operating strategies identified using benchmarking tools.
- Good performance indices, covering technical and economic aspects of treated wastewater quality, operating conditions and removal efficiencies.
- Chemical enhancement strategies using two new eco-friendly adsorbents and two natural coagulants.
- Development and validation of a procedure for PhC analysis in biological samples (clams).
- Analytical monitoring of PhC accumulation in clams.
- PhC analytical monitoring capacity-building of the consortium and the water.
- Cost-benefit analysis using innovative integrated approach based on four pillars: engineering, environmental/economic impact, health-related data, and social indicators and stakeholders' attitudes towards PhC impact on environmental health, drinking water sources and water reuse projects.