

## **BIOMASS-DERIVED CARBONS IN THE CONTEXT OF LIFE IMPETUS PROJECT FOR REMOVING PHARMACEUTICAL COMPOUNDS FROM URBAN WASTEWATERS**

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Pharmaceutical compounds (PhCs) are emerging contaminants of environmental-health concern that, if not controlled, could adversely affect drinking water sources and water reuse projects, two key issues of sustainable water management. The use of PhCs is growing as they are used not only for treatment but also for prevention of illness. Once administered, PhCs are metabolized in varying degrees, and their excreted metabolites and unaltered parent compounds can also undergo further modification due to biological, chemical and physical processes. WWTPs are crucial barriers against PhCs, but many of these compounds are resistant to conventional treatments, thus cost-effective and resource efficient solutions based on existing infrastructure are essential.

The LIFE Impetus project (LIFE14 ENV/PT/000739) aims at demonstrating feasible measures for improving the control of PhCs in urban wastewater treatment plants (WWTPs) with conventional activated sludge (CAS) treatment. Namely, strategies based on chemically enhanced barriers, with adsorbent and/or coagulant addition, are underway.

For the adsorbents, biomass-derived activated carbons are being developed and benchmarked against commercial carbons. The first selection of biomass took into account the availability of national industrial wastes and so cork and carob processing wastes were chemically and physically activated with steam. Selected materials were already used in laboratory tests assessing the competitive adsorption of a short-list of representative PhCs, first in a synthetic inorganic matrix and then in real wastewater effluents of one of the treatment plants selected as case study.

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