

Etude des transferts des micropolluants atmosphériques dans les eaux pluviales et de ruissellement

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Abstract

The impermeabilization of soil due to urbanization significantly slows down the natural infiltration of rainwater into the ground, leading to increased surface runoff. As this runoff occurs, the water collects micropollutants that have accumulated on urban surfaces. This pollution becomes problematic during heavy rainfall events when the volume of water is too great to be treated at wastewater treatment plants and must be directed towards alternative techniques. Within these systems, the water is not treated before being released into nature. The ultimate goal of this project is to develop a filtering system that combines sand, flax fibers, and activated carbon produced from flax shives. This system would be placed at the entrance of retention basins to purify the water before it is released. This thesis focuses on studying the adsorption capacity of flax fibers for six metals and the activated carbon for three PAHs. The use of kinetic models and isotherms enabled the characterization of pollutant adsorption. Adsorption competition was studied, as well as the effectiveness of adsorbents on reconstituted water and runoff water collected in Normandy.