

R. Janssens, P. Luis; Targeting the elimination of antineoplastic compounds in hospital wastewaters. Journée Jeunes Chercheurs 2016, 6th October, Louvain-la-Neuve, Belgium. (poster)

Abstract:

The potential of photocatalytic membrane reactors (PMR) to degrade cytostatic drugs is presented in this presentation as an emerging technology for wastewater treatment. Cytostatic drugs are pharmaceutical compounds (PhCs) commonly used in cancer treatment. Such compounds and their metabolites, as well as their degraded by-products have genotoxic and mutagenic effects [1]. Therefore, pollution sources should be equipped with appropriate wastewater treatment technologies. Degradation of cytostatic compounds can be achieved with different processes such as chemical oxidation, photolysis or photocatalysis, which are presented in this article as state-of-the-art technologies. PMRs are considered the next generation technology, but still face some limitations related to the mechanical abrasion of polymeric and ceramic membranes, catalyst suspension and interferences with the water matrix. A comparison between the conventional advanced oxidation processes and PMRs is made, showing key recommendations for further PMR development such as membrane mechanical resistance improvement or system integration.