

Removal of Pharmaceuticals by Advanced Oxidation Processes

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Pharmaceuticals are widely used in human and veterinary medicine every day. Due to their stability and possibility of bioaccumulation they are significantly represented in all components of environment especially in wastewater. Conventional purifying methods on WWTPs are insufficient for elimination of certain xenobiotics. Especially for xenobiotics which are difficult, slowly or impossible to eliminate by conventional (mechanical -biological) methods. Due to these facts we dealt with the possibility of removal xenobiotics by advanced oxidation processes (AOP). We chose three groups of pharmaceuticals. First group is Nonsteroidal anti-inflammatory drugs (Ibuprofen, Diclofenac, Naproxen, Ketoprofen) which are most consumed pharmaceuticals in Czech republic. Second group is macrolide antibiotics (Azithromycin, Clarithromycin, Erythromycin, Roxithromycin) and third is sulphonamide antibiotics (Sulfamethoxazole, Sulfathiazol, Sulfamethazin). The experiments were doing on AOP unit which works with ozone, hydrogen peroxide, UV radiation and their combinations.