This study was designed to analyze pharmaceuticals removal using biological sewage and wastewater treatment processes. Since pharmaceutical removal efficiency in a bioreactor was very low, it was determined that removing pharmaceuticals using biological treatment alone is very difficult. Thus, it attempted to identify the pharmaceutical removal characteristics with main physical and chemical processes such as coagulation sedimentation, ozonation, activated carbon treatment, and chlorine disinfection process as targets. The removal efficiency by coagulation and sedimentation turned out to be highest in atenolol with 16%. Other substances exhibited low removal rates regardless of coagulant dosage. Results of the batch test in which 30 mg/L of ozone was injected stepwise showed that diclofenac and trimethoprim showed a 95% removal rate at an ozone concentration of 5 mg/L, while iopromide with the lowest processing efficiency exhibited a 90% removal rate at a high ozone concentration of 30 mg/L. The same trend was found in the activated carbon adsorption process in that substances such as iopromide and mefenamic acid showed satisfactory removal rates at EBCT = 15 min.

Keywords: Sewage treatment plant; Pharmaceuticals; Ozone oxidation; Activated carbon adsorption