

The provided results of surface water examination indicates the presence of variety organic compounds being results of human activity. Their effects on conditions of aquatic organisms and on water consumers are not fully recognized. These organic micro-pollutants are called by researchers as "emerging contaminants" (EC). This name includes chemical compounds that are naturally occurring in nature as well as synthetic compounds produced by the chemical industry, agriculture or domestic wastes. Many of them show biological activity in relation to living organisms, and the effects of their presence in the environment are difficult to predict. The EC list is not closed and includes natural and synthetic hormones (estrogens and phytoestrogens), alkylphenols and their derivatives (detergents), substances of industrial origin (bisphenol A, phthalates), personal hygiene and cosmetic ingredients (parabens, benzophenones), flame retardants, pharmaceutical residues (e.g., diclofenac, naproxen) and many more. These compounds are found in the aquatic environment in a wide range of concentrations from several hundred μg of L^{-1} in municipal wastewater and in leachates from municipal waste landfills to several tens of L^{-1} in surface waters. However, the presence of even such small amounts of these compounds in the environment is highly harmful, because a number of organic substances disturbs the hormonal balance of aquatic organisms, resulting in e.g. the phenomenon of feminization of frogs or fish. Compounds with this activity are included under the name "endocrine disrupting compounds" (EDCs). These compounds easily penetrate the food chain and are consumed by humans together with food. There is a series of studies linking the emerging health problems of human populations with continuous exposure to chemicals, especially during the prenatal period. One of the identified sources of EDCs in the environment is treated municipal sewage. Classic wastewater treatment plants using activated sludge technologies do not cope with the presence of EDCs and the removal of compounds from the EDCs group usually is not full. The efficiency of purification depends on the construction of the treatment plant, the size of the population being served, the amount of organic substances as well as their type. The removal rate varies within very wide range, e.g. 67-95% for diclofenac, up to 95% for naproxen, or up to 99% for bisphenol A. The efficiency of removal can be increased by additional purification by chemical processes or by adsorption on active carbon. Chemical processes are characterized by high cleaning efficiency. This requires additional expenses related to new installations as well as creates problems with the utilization of new generated wastes. Therefore, the search for economic and also pro-ecological methods of removing endocrine compounds from wastewater is still a current problem. The use of plant organisms meets all the requirements of "green" purification processes. Phytoremediation is used for plants characterized by rapid biomass growth, not very sensitive to the variability of the composition of treated waters or soils, high content of salts, phosphates and nitrogen such as, among others energy willow, poplar, bulrush and others. In this project, the use of floating plants such as free-range wolf (*Wolffia arrhiza* (L.), Wimm.), Carolinian azolla (*Azolla caroliniana* L.), multi-root spirodela (*Spirodela polyrhiza*) and water eyelash (*Lemna minor* L.) to remove the most common existing EDC in municipal wastewater. It is supposed that these plants can be successfully used to remove organic micro-pollutants from raw and treated wastewater. The main goal of research is to determine the effectiveness of removing selected EDCs from the nutrient media and the tested wastewater samples. The mechanism of removal of organic compounds by plants will be determined. Additionally, there is planned a checking whether the organisms tested are not a source of new contaminants, and whether the removed micro-pollutants are accumulated in tissues or decomposed by them. The changes in the growth dynamics and plant life processes cause their contact with substances from the EDCs group will be examined.