ABSTRACT

Research on the occurrence of organic micropollutants in the human environment, including the determination of their concentration levels, the search for sources of their emission and the development of effective methods for their elimination, are considered to be one of the most important issues undertaken in the protection and improvement of the quality of the environment. Swimming pool water is of particular interest in this respect due to the specific nature of this water environment. The presence of organic micropollutants in swimming pool water seems to be an important, and at the same time very poorly recognized, source of the impact of these pollutants on human health. A review of the literature on the issues of the occurrence of micropollutants in various elements of the aquatic environment, including swimming pool water, prompted the conduct of extensive research, the main purpose of which was to analyze the types and concentrations of organic micropollutants in the swimming pool water environment and to identify their sources In swimming pool installations.

The conducted research and observations confirmed the theses posed in the work, that (1) in the swimming pool water, regardless of the appropriate treatment system, there are different groups of organic micropollutants, (2) the concentration of organic micropollutants in the swimming pool water depends on many different factors and increases during the operation of the swimming pool installation, (3) processes and reactions occurring in swimming pool installations can cause transport and numerous transformations of micropollutants present in swimming pools.

Regardless of the type of the pool basin, its function and the method of solving the pool water treatment technology, a number of organic micropollutants have been identified in the pools, which have been assigned to 5 groups of compounds. Pharmaceuticals were the most numerous group. The presented research results showed the dependence of both the frequency and concentration levels of organic micropollutants on the type of the pool basin (open or indoor pool), its purpose and function (which directly determines the water temperature), the method of solving the pool water purification system, and in particular the application disinfection support methods (i.e. ozonation or UV lamp). The variability of the concentration of organic micropollutants was also shown depending on the point of water intake for testing - both in the swimming pool water system and in the basin, and on the time of collection (time of day, sequence of days during the filter cycle).