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Analysis of the presence and drug resistance of bacteria from the *Enterobacteriaceae* family and the genus of *Enterococcus* in treated wastewater from a selected wastewater treatment plant

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ABSTRACT

Sanitary cleanness of water is one of the most important components of contemporary water management. However, many potentially hazardous microorganisms are often found in water. These include bacteria such as *Escherichia coli* and enterococci (former streptococci). Both enterococci and many intestinal bacteria can lead to several diseases which are hazardous to humans and animals. These microorganisms are a leading cause of infections in the gastrointestinal tract, with its symptoms including diarrhoea, fevers, intestinal and digestive problems. However, in certain cases of the above infections, tissues which are important to the function of human body can be affected (e.g., joints, lungs, soft tissues, kidneys, endocardium, etc.). These bacteria, especially if drug-resistant, can lead to sepsis (especially in people with weak immunological system), which is potentially hazardous to human life. For this reason, both intestinal bacteria and enterococci should be eliminated through a water treatment step in municipal wastewater treatment plants. The material was sampled from a medium-sized wastewater treatment plant in the southern part of Poland. The plant uses a biological wastewater treatment process based on activated sludge. After pure water is separated from sewage sludge in this process, it is transferred to the water receiver (river). The examinations revealed the presence of indicator bacteria, that is, intestinal bacteria and enterococci in the analysed water samples following the treatment process.

Keywords: Water; Pathogenic bacteria; *Enterobacteriaceae*; *Enterococcus*; Drug-resistant bacteria

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