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ANTIBIOTIC RESISTANCE IN THE ENVIRONMENT – CAUSES AND CONSEQUENCES

Summary

Bacterial resistance to antibiotics is a growing problem in recent years. In the literature, there are numerous reports of multi-drug resistant strains isolated from patients. The World Health Organization and the European Centre for Disease Prevention and Control estimates that antibiotic resistance causes 25 thousand deaths every year; this generates costs of more than 1.5 billion euros – due to healthcare and the losses resulting from a decline in productivity. Antibiotic resistance concerns not only clinical medicine but also veterinary, agriculture, food industry and broadly understood environment. Very often the same species of bacteria and, more importantly, the same antibiotic resistance genes are carried by bacteria present in the mentioned environments. Numerous studies indicate that the “hot spots” for the spread of antibiotic resistance outside the clinical environment are wastewater treatment plants, where there are mixed municipal, hospital and industrial sewages and wastewaters derived from pharmaceutical companies or the slaughterhouses. Therefore, the antibiotic resistant bacteria, including pathogens, as well as antibiotics that determine selective pressure thus enter sewage treatment plants with wastewaters.