



Detection of microplastics in soil samples from the area of traffic route

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At the end of the 1940s, mass production of plastics began. Since then, due to the very wide range of applications, a steady increase in their production has been observed. Anthropogenic activities have a significant impact on the natural environment. In this case, despite the knowledge of the problem, as early as the early 1970s, the harmful consequences continued to increase, and even if stopped immediately, their effects would last for centuries. In 2018, global production of plastics reached almost 360 million tonnes. The diverse use of plastics and low production costs mean that there are no other environmentally friendly alternatives that could replace them on a large scale. Therefore, it can be assumed that their production will continue to grow dynamically. The main hazard posed by the production of plastics is microplastic. These are plastic particles smaller than 5 mm. Research on microplastics in the environment is based mainly on diagnosing the problem in sea waters. Its concentration in soils is underestimated. The microparticles of plastics contained in the soil influence not only its structure or the ability to retain water, but also the organisms living in it. In the experiment, soil samples from the vicinity of a busy road in the city of Krakow, Poland, were examined. First, the samples were separated by density, and then the organic material was digested. The separated microplastics were analyzed both in terms of quantity and quality. Tests were carried out under the FTIR microscope, using the sensitive DRIFT method, and in the case of larger fragments, using ATR-FTIR. The results indicated the presence of a large fraction of microplastics, most often from tire abrasion.