

MICROPLASTICS IN COMPOSTS AS A BARRIER TO THE DEVELOPMENT OF CIRCULAR ECONOMY

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Abstract

The philosophy of sustainable development imposes on waste management systems solutions that are technically correct, economically effective and socially acceptable. One of the elements of these systems is the management of organic waste in two streams: municipal organic waste and the so-called green waste. Their composition is different, but some properties and technological processing possibilities are identical. The possibilities of using organic recycling products are also completely different. However, in both cases, such treatment is necessary, regardless of the type of waste, to either use it as much as possible or to store only bio-stable waste.

A big problem all over the world, not only for cities, is nano- and microplastics. It is estimated that 2–5% of all plastics produced are discharged into the oceans. High-density polymers settle to the bottom of water bodies, imitating food for bottom invertebrates. Conversely, low-density microplastics floating on the surface of the water pose a threat to zooplankton and smaller fish. However, the conducted research indicates that the pollution of terrestrial environments may be even 4 to 23 times greater than that of the ocean. While flowing through the sewage treatment plant, microplastics are accumulated in sewage sludge, and in the case of natural use of the sludge, they can end up in the soil and in the food chain of animals and humans. Composts are another source of soil contamination, especially from municipal organic waste and green waste. On January 16, 2018, the European Commission published the European Strategy for Plastics in a Circular Economy, which outlines how plastic products are designed, manufactured, used and recycled.

The aim of the paper is to present the initial results of preliminary tests on organic waste in terms of the possibility of identifying microplastics in them [1–3].

Keywords: Organic waste; Composting; Microplastics.