Theme 3
Impacts of soil nutrient management on the environment and climate change

Study of municipal solid waste as a resource of organic fertilizers

Sindor Pardaev*, Dilfuza Kholmatova**
*Samarkand state University. Samarkand, Uzbekistan
Agrobiotechnological college of Samarkand state University
pardayev78@mail.ru

Introduction. At present, much attention is paid to sorting and recycling of waste in Uzbekistan. Based on the creation of devices for sorting waste, the production of new products by recycling the separated waste of each type is one of the most preferred methods of waste disposal. One of the ways to process MSW is the composting of its organic components, which is needed by the irrigated soils of Uzbekistan. As a result, the amount of waste, which contains a large amount of useful organic and chemical substances, is growing. When substances are returned to the biological cycle, the recycling and efficient use of organic waste is of paramount importance. Processing of organic waste, especially solid waste, has become one of the most urgent problems.
Keyword: Municipal solid waste, compost, soil fertility.

Methods. The morphology and chemical composition of the municipal solid waste were studied on the basis of generally accepted methods. Changes in waste disposal during 2000-2020 were analyzed on the generally accepted scientific methods.

Results and discussion. In the production of compost from organic and food waste, it is important to separate them into types. Such a processing method prevents environmental pollution with waste, increases soil fertility and improves the ecological and socio-economic environment. Waste sources in the city cover all aspects of life, mainly 68% from residential areas, 16% from trade, 14% from government agencies and 2% from industry. Comparing the obtained long-term data, it was found that the amount and composition of solid waste in Samarkand is changing dramatically.

The largest amount of municipal solid waste in the city is food waste. Its volume increased from 2002 to 2020. The increase in food waste is mainly due to the growth of the population and its income. The low growth in 2010-2020 may be due to the COVID-19 pandemic last year. The amount of organic waste at the Samarkand city landfill in 2020 amounted to 70.7%. Processing of organic waste increases the base of secondary raw materials, reduces their negative impact on nature and environmental pollution, and the biological cycle of substances improves. The amount of plastic and polyethylene waste has also increased over the analyzed years. Initially, this increase was about 1% every 4 years (2002-2004) and almost 1% in the next 10 years (2010-2020). The main reason for this is that plastic is heavily recycled and the use of plastic and polyethylene containers is low due to the pandemic period. Other wastes and wastes with a diameter of less than 15 mm account for about 16-18% in recent years.

The largest amount of municipal solid waste in the city is food waste. Its volume increased from 2002 to 2020. The increase in food waste is mainly due to the growth of the population and its income. The low growth in 2010-2020 may be due to the COVID-19 pandemic last year. The amount of organic waste at the Samarkand city landfill in 2020 amounted to 70.7%. Processing of organic waste increases the base of secondary raw materials, reduces their negative impact on nature and environmental pollution, and the biological cycle of substances improves. The amount of plastic and polyethylene waste has also increased over the analyzed years. Initially, this increase was about 1% every 4 years (2002-2004) and almost 1% in the next 10 years (2010-2020). The main reason for this is that plastic is heavily recycled and the use of plastic and polyethylene containers is low due to the pandemic period. Other wastes and wastes with a diameter of less than 15 mm account for about 16-18% in recent years

Table

Morphological composition of solid domestic waste of the city of Samarkand, (% of total weight)

Waste types	Years			
	2002	2006	2010	2020
Food wastets	33,2	34,3	35,4	36,5
Papers	18,6	19,1	20,3	19,7
Waste plant, leaves and herbs	13,8	13,9	11,1	12,5
Plastic, polyethylene	5,0	6,3	7,2	8,1
Textile	4,8	3,5	2,2	1,6
Rubber. Leather	1,9	1,1	0,9	1,0
Glass	2,7	1,8	1,2	1,1
Metall	1,1	0,9	0,8	0,8
Bone	1,7	1,9	2,1	2,0
Other wastes	9,0	8,6	8,4	8,0

Conclusion: Thus, about 70% of Samarkand's MSW components are organic. This allows them to be used in the production of organic compost fertilizers. High-quality organic compost fertilizers made from organic waste, increase the supply of organic fertilizers and increase the fertility of soils.

Reference
1. Pardaev, S., Kholikulov, Sh., Ortikov, T. The agrochemical properties of organogenic wastes and the possibility of preparing composts. Ukrainian Journal of Ecology, 72-76.
2. Kholikulov Sh.,Pardaev S.Waste is a resource of organic fertilizers. Proceeding of international conference «Problems of reclamation of household, industrial and agricultural waste». Krasnodar, March 24–25, 2015.Russia. p-444-448.
3. Muhammad Khalid Iqbal. Soil Productivity Enhancement. 2018. DOI: 10.5772/intechopen.81729