Waste water treatment by natural sorbents

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Water is the most valuable natural resource. It plays a crucial role in the metabolic processes that form the basis of human life. It is well known the need for domestic human needs. At the same time the water needs are enormous and are increasing every year. The water cycle in nature, it is a long way of its movement. Throughout its path the water has the ability to be cleaned of dirt falling into it - the products of decay of organic matter, dissolved gases and minerals, suspended solid material. But this self-cleaning ability is not unlimited. In recent years, the environmental system hits a huge number of pollutants, from which they are unable to protect themselves. And mostly untreated or poorly treated wastewater.

Wastewater treatment is a treatment for the removal or destruction of harmful substances. The release of wastewater from pollution is a complex process. There are a variety of techniques and methods of wastewater treatment. In the present study we have investigated samples of waste (municipal) water of Almaty city. The composition of wastewater is studied, its organoleptic properties, electrical conductivity, optical density is determined. Adsorption performed on samples of wastewater by using of natural adsorbents of Kazakhstan (diatomite, kaolin and bentonite) for 1 week.

It is found that kaolinite, bentonite and diatomite used as adsorbents exhibit considerably good adsorption properties: pH of the water dropped from 9 to 7.5; conductivity of waste water samples is increased by 17%, 24.6% and 22.4%. Results of the study of the absorption of UV waves after adsorption showed in the composition of wastewater the absence of indole, furan and fluorobenzene.

These results suggest the use of domestic adsorbents kaolinite, bentonite and diatomite to improve wastewater treatment.