Abstract

In this work I have dealt with the influence of irrigation with treated wastewater on the development of soil hydrophobicity.

In the theoretical part I deal with the influence of using treated wastewater on the development of hydrophobicity in soils irrigated in such manner, the methods used for measurement and in general the benefits and risks of application of treated wastewater to soil.

In the practical part, I focused on measuring hydrophobicity using the Water Drop Penetration Time (WDPT) method. Soil samples originated from the Hostětín, where a long-term irrigation test with treated wastewater is underway. For the purpose of testing the WDPT method, soil samples taken at the beginning of the experiment (in 2018) were used, as well as long-term irrigated samples with treated wastewater from the constructed wetland under laboratory conditions. As a control served irrigation with well water and part of the samples from both variants was additionally irrigated with rainwater, which simulated the amount of precipitation that fell on average in the Zlín Region during the experiment. The water used for this experiment came from a constructed wetland close to the Perlová voda complex near Kostelec nad Ohří in the Ústí Region. The samples were irrigated for one year. The method was further tested on a soil sample from the same locality, which was artificially hydrophobized by using stearic acid.

The results of the test indicate that irrigation with wastewater for 1 year did not have such an effect on the hydrophobicity of the tested soil that would be measurable by using of the applicated WDPT method.

Key words: treated wastewater, soil hydrophobicity, irrigation