

The effect of macrophytes on retention times in a constructed wetland for wastewater treatment

Holcová V., Šíma J., Edwards K.R., Semančíková E., Dušek J. and Šantrůčková H. (2009): The effect of macrophytes on retention times in a constructed wetland for wastewater treatment. RNDr. Thesis, in English. Faculty of Science, University of South Bohemia, České Budějovice, Czech Republic. 26pp.

Abstract

Effectiveness of removal processes in constructed wetlands (CW) relies on adequate contact time between wastewater and the substrate, including vegetation. That is why determination of retention time is an essential tool in predicting wetland performance. Retention time is, in most cases, dependent mainly on flow rates. However, other causal agent, such as evapotranspiration and the physiological functions of the macrophytes growing in the CW, may be responsible for changing the retention time. This function is very important especially in small size CWs with dense vegetation and low flow rates; such systems are widespread in the Czech Republic.

Retention times of treated water in a constructed wetland (CW) with horizontal subsurface flow were determined both in the vegetative and non-vegetative periods of 2005. Tracer experiments were performed using fluorescein.