



Universität
Basel

Research Project

Purification capacity of constructed wetlands

Project funded by own resources

Project title Purification capacity of constructed wetlands

Principal Investigator(s) [Alewell, Christine](#) ;

Co-Investigator(s) [Fritsche, Johannes](#) ;

Organisation / Research unit

Departement Umweltwissenschaften / Umweltgeowissenschaften (Alewell)

Project start 01.10.2007

Probable end 31.12.2013

Status Completed

The physical and chemical properties of three different lava sands used in constructed wetlands for municipal wastewater treatment were investigated. The aim was to identify those properties and mechanisms that render lava sands as highly efficient filter media which could substitute conventional, fluvial sands. It was shown that although lava sands per se may be suitable filter materials, the presence of zeolite minerals within the lava sands enhances the purification efficiency tremendously. Zeolites not only increase the sorption capacity, but even more important, they are able to absorb water in large amounts, which in turn leads to stronger swelling. The latter reduces hydrological conductivity considerably, resulting in a longer contact time to eliminate pollutants. A simple mineralogical survey of filter materials for the presence of zeolites may render many installations of constructed wetlands successful.

Keywords constructed wetlands, waste water, zeolithes

Financed by

Other funds

Add publication

Published results

410762, Bruch, Ingo; Fritsche, Johannes; Bänninger, Dominik; Alewell, Ulrike; Sendelov, Michael; Hürlimann, Heinz; Hasselbach, Ralf; Alewell, Christine, Improving the treatment efficiency of constructed wetlands with zeolite-containing filter sands, Bioresource Technology, Publication: JournalArticle (Originalarbeit in einer wissenschaftlichen Zeitschrift)

2828907, Bruch, I.; Alewell, U.; Hahn, A.; Hasselbach, R.; Alewell, C., Influence of soil physical parameters on removal efficiency and hydraulic conductivity of vertical flow constructed wetlands, 0925-8574, Ecological engineering, Publication: JournalArticle (Originalarbeit in einer wissenschaftlichen Zeitschrift)

Add documents

Specify cooperation partners

ID	Kreditinhaber	Kooperationspartner	Institution	Laufzeit - von	Laufzeit - bis
984264	Alewell, Chris- tine	Hasselbach, Ralf	EVS Saarland	01.10.2007	31.12.2015
984260	Alewell, Chris- tine	Bruch, Ingo, Dr.	Consulting Büro Bruch- Alewell	01.10.2007	31.12.2015
2365889	Alewell, Chris- tine	Dr. Andreas Hahn	ZetA Partikelanalytik GmbH, Mainz	12.07.2008	31.12.2015