Geophysical Research Abstracts
Vol. 20, EGU2018-17021, 2018
EGU General Assembly 2018

Experimental and mathematical modeling of irreversible BIOCHAR sorption in contaminated soil

Michal Kuraz (1), Petr Ourednicek (2), and Lukas Trakal (2)

(1) Czech University of Life Sciences Prague, Faculty of Environmental Sciences, Department of Water Resources and Environmental Modeling, Prague - Suchdol, Czech Republic , (2) Czech University of Life Sciences Prague, Faculty of Environmental Sciences, Department of Geosciences, Prague - Suchdol, Czech Republic

Biochar is a novel sorbent material suitable for hazardous metal(oid)s stabilization in contaminated soils. Sorption process is typically approximated by Langmuir equation in equilibrium (steady) state. The parameters for the Langmuir equation are usually obtained from batch sorption experiments with constant pH level. However, the batch experiments cannot satisfactory describe the sorption proces in soil conditions. In general, equilibrium sorption models are not capable for description of irreversible sorption, which is the essential property of BIOCHAR sorbent. Following this concept a mathematical model capable for describing both the reversible soprtion in soil and irreversible sorption in BIOCHAR was developed and is capable for inverse analyses of the fundamental kinetic sorption parameters from dynamic laboratory column experiments.