Geophysical Research Abstracts
Vol. 14, EGU2012-6594-3, 2012
EGU General Assembly 2012

Salt leaching process in a saline soil through disturbed soil columns

P. Afrasiab, M. Delbari, and M. Talebzadeh

Department of soil and water, Institute of water enginerring, University of Zabol,Islamic Republic Of Iran
(mas_delbari@yahoo.com)

Excessive accumulation of soluble salts in the root zone is the main cause of salinity problems. High level of soil salinity can reduce plant grow; therefore leaching or adequate drainage is required to improve saline soils. In this study soil column leaching experiments were performed to investigate the salt leaching process in a saline soil from Azizabad of Bam, Iran. Soil column leaching experiments were conducted with different soil textures including clay loam, loam, sandy clay loam, sandy loam and loam sandy. The soil columns were leached with approximately 5 pore volumes. Effluents from each leaching were collected and analyzed for soluble cations (Ca2+, Mg2+, Na+ and K+). After the leaching cycle was completed, the columns were split open and then cut into 3 sections, each of 10 cm. Soil samples were taken from each section and analyzed for EC, Na+,Ca2+ and Mg2+. The results showed that the water used in leaching experiments could reduce solute concentrations and these soils do not need any amendment. Generally the coarse textured soils were more effective in ion movement than fine textured soil. The coarser textured soils allow solute arrival in effluent solution ahead of others. The amount of clay plays an important role in retaining and removal of ions from the soil. The difference between the amounts of irrigation water required for salinity removal depends on soil texture. The most common cause of such reactions is cation exchange process.