Geophysical Research Abstracts
Vol. 18, EGU2016-1729, 2016
EGU General Assembly 2016

Adsorption Simulation of Cadmiun and Zinc in Acric Soils by Constant Capacitance Model

Luiz Gabriel da Silva (1), Alexandre Colato (2), José Carlos Casagrande (3), and Marcio Roberto Soares (3)

(1) Federal University of São Carlos, Agrarian Sciences Center, MSc in Agriculture and Environment , (2) Federal University of São Carlos, Agrarian Sciences Center, Department of Natural Sciences, Mathematics and Education, (3) Federal University of São Carlos, Agrarian Sciences Center, Department of Natural Resources and Environmental Protection

Acrodox soils are very weathered soils, characterized by having buildup of iron and aluminum oxides and hydroxides. These soils are present in extensive productive regions in the state of São Paulo, Brazil. This work aimed at verifying the adequacy of constant capacitance model in describing the adsorption of cadmium and zinc in Acrodox soils. In this work, sets of measurements from three soils were used, Anionic Rhodic Acrudox (RA), Anionic Xanthic Acrudox (XA) and Rhodic Hapludalf (RH). The chemical (CEC, pH in water and in KCl solution 0,1molL-1, organic carbon, etc.), mineralogical (kaolinite and gibbsite) and physical attributes (distribution of particle size and specific surface area) of these soils were determined in the layers 0-20 cm and 20-40 cm. Adsorption data of cadmium and zinc were also previously determined for samples of both layers of each soil. Were applied 5 mg dm-3 of cadmium and zinc to 2,0 g of soil to ample pH range (3 to 10) to build the adsorption envelops to three ionic strength (0,01; 0,1; and 1,0 molL-1 of CaCl2). The constant capacitance model was adequate to simulate the adsorption of zinc and cadmium. It was not possible to make appropriate distinctions between measurements and simulations for two soil layers studied, neither between the three concentrations of background electrolyte.