Geophysical Research Abstracts
Vol. 16, EGU2014-5872, 2014
EGU General Assembly 2014

Arsenic fractions in soils: A case study in the Amblés valley (Castilla-León, Spain)

Jose Joaquin RAMOS-MIRAS (1), Pedro DÍAZ-FERNÁNDEZ (2), Ana SANJOSÉ_WERY (2), Jose Antonio RODRÍGUEZ-MARTÍN (3), Rafael Boluda (4), Jaume Bech (5), and Carlos Gil (1)

(1) Dep. Pedology and Chemical Chemistry, Almería University, Almería, Spain, (2) Dept. Desarrollo Sostenible Facultad de Ciencias y Artes, Universidad Católica de Ávila, Spain, (3) Environmental Department, INIA, Madrid, Spain, (4) Faculty of Pharmacy, Valencia University, Valencia, Spain,, (5) University of Barcelona, Laboratory of Soil Science, Faculty of Biology, Plant Biology, Barcelona, Spain (jaumebechborras@gmail.com)

Arsenic (As) is a trace element whose distribution and toxicology in the environment is a serious issue. In Spain, presence of As has been mainly related with mining activities because oxidation of sulphur minerals releases As into the environment. As has been detected in aquifers and soils in southern areas of the Spanish Autonomous Castilla-León Community (central Spain). Risk of human contact with As has increased substantially in the last two decades as residential areas continue to expand into former agricultural land. As distribution in topsoil horizons in the high Adaja river basin in the Amblés Valley, Ávila (Autonomous Castilla-León Community) were studied. In this area, the principal soil use is conventional farming. Three As-soil fractions: total content, extractable with EDTA and water-soluble, were determined. The origin and the causes that might favour their higher or lower concentrations were investigated. Geochemical baseline concentrations were established, and the relationships between the concentration of the different As fractions and soil properties were investigated. Iron-aluminium oxides, clay content, soil organic matter, and soil pH were the main controlling factors for As soil concentrations. Total As content in soils was related with parent material, whereas anthropogenic activities affected its solubility.