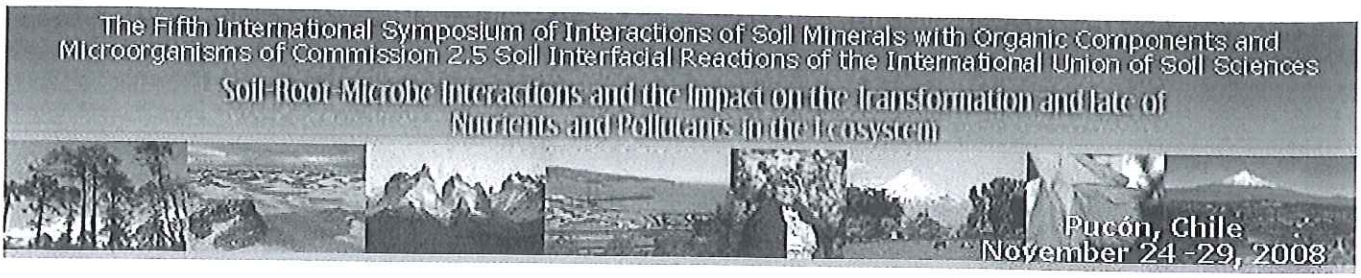

ISMOM 2008

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observed in contaminated soils, probably related to bacterial groups selected by their metal resistance. Copper resistant bacteria were isolated from contaminated soils and presented a great metal tolerance (up to 275 mg/kg). Analysis by electron microscopy showed changes in the outer envelope and intracellular copper accumulation in some resistant strains. Detection of *cop*A (copper transporting ATPase) and *pco*A genes (multi-copper oxidase) in resistant strains suggests copper efflux and/or sequestration as resistance mechanisms. Our results suggest that soil bacterial communities respond to high copper concentration exposure by changes in microbial community structure and a selection of resistant strains. Future research will focus both on the evaluation of copper accumulation and the search of other genetic determinants involved in copper tolerance in resistant strains.

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Keywords: Copper Resistant Bacteria; *cop*A and *pco*A genes; resistance mechanisms.

S3-P22
Competitive Adsorption of Copper and Lead on Volcanic Soil

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Chilean soils are characterized by their heterogeneous components due to the various interactions of their parental materials; which is dependent on the climatic conditions along the country. Volcanic soils represent a 70 % of the total agronomic land. The heavy metals retention depends on the nature and relative abundance of mineralized and organic phases which according to the geochemical soil solutions; control the adsorption processes and also regulates the transport of contaminants to another environmental compartments. The metal ion characteristics as size, charge and hydrated ion size are another factors to be considered in the competitive interactions between them and with others solution species for specific position or adsorption site. Ever more, the different reactive phases may offer adsorption positions of varied bonding energy to the solution species. The competitive adsorptions processes are relevant because heavy metals presence as nature or contaminant elements can be found simultaneously in the soil systems. Bioavailability of heavy metals is the potential fractions constituted by a soluble and absorbed metal content by plant species. The metal Bioavailability depends on its solubility and the adsorption capacity the soil colloidal fractions. Unfertilized Ralun Soil (41° 32' S 73° 05' W), classified as Andisol, was studied the more relevant chemical characteristic are: high content of organic matter, high cationic interchange capacity and high water retention content. The soil was characterized using the standard methods. Monocomponent are bicomponent adsorption isotherms was realized using bath experiment were studied by scanning electron microscopy (SEM) and x-ray diffractions were used to monitor Cu, Pb adsorptions on Ralun Soil and Microprobe analysis and microprobe profiles were made with a Link Isis energy dispersive spectrometry (EDS) micro analytical system on the SEM. From the studies realized can be appreciated that the adsorptions increment follows the sequence: Pb > Cu. The isotherm fits Freundlich and Langmuir models.

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Keywords: Competitive adsorption; volcanic soil; heavy metals.