

# Changes in the sorption, desorption, distribution, and availability of copper, induced by application of sewage sludge on Chilean soils contaminated by mine tailings

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The effect of mine tailings and sewage sludge was evaluated on sorption, desorption, availability and distribution of copper in two soils, one high (sandy soil) and one low in copper (clay soil). In both soils contaminated by mine tailings the copper sorption capacity and the affinity of the substrate for the metal decreased substantially compared to the uncontaminated soils, however, the sorption remained always high in the clay soil substrates. In the substrates with sandy soil, the high Cu content and lower clay content were determining factors in the lower magnitude of the sorption. Similarly, metal desorption was closely related to these two parameters, and it was higher in clay soil with lower pH. In general, the application of sewage sludge favored the sorption of Cu in soils contaminated and uncontaminated with mine tailings, and in all cases desorption decreased, an effect that remained for at least 30 days. Simple extraction of Cu with CaCl<sub>2</sub> and diethylenetriaminepentaacetic