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## The fate of chromium in soils

**M. Clara F. Magalhães**<sup>1</sup>, Cândida Sarabando<sup>2</sup>, Teresa M. Santos<sup>3</sup>, and Maria Manuela Abreu<sup>4</sup>

<sup>1</sup>CICECO Aveiro Institute of Materials, Department of Chemistry, University of Aveiro, 3810-193 Aveiro, Portugal (mclara@ua.pt)

<sup>2</sup>Quinta da Valpeia, 5110-642 Tões, Armamar, Portugal

<sup>3</sup>CICECO Aveiro Institute of Materials, Department of Chemistry, University of Aveiro, 3810-193 Aveiro, Portugal

<sup>4</sup>Instituto Superior de Agronomia, Linking Landscape, Environment, Agriculture and Food Research Centre (LEAF), University of Lisbon, Lisbon, Portugal (manuelaabreu@isa.ulisboa.pt)

The large industrial utilization of chromium compounds originates heavy environmental and health risks concerns. Chromium has a double behavior, as Cr(III), is an essential element to living beings but also a very harmful carcinogenic as Cr(VI). Hexavalent chromium is a powerful oxidant easily reduced to chromium(III). The fact of the compounds of chromium(III) being considered kinetically inert induces their environmental abandon without any concerns about their real final fate. Nowadays there is an increasing interest on chromium bioremediation in soils.

Depending on soils composition, the interaction between the chromium(III) compounds and both organic and inorganic soil components can originate an increase of the solubility of the chromium(III) compounds together with acid-base and redox reactions. The change on the solubility of chromium compounds can be monitored from the composition of the soil solutions from where plants can have access to the ionic species of chemical elements. The presence of organic matter is usually associated to the existence of reducing environments, while the presence of manganese oxides is associated to oxidizing environments. Here is analysed the influence of these two environments in the composition of soil solutions and the consequent availability to plants, as well as the design of the soil remediation programs.