Abstract Book

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Session 4 - Oral Presentation Abstracts – Wednesday 3rd (pm)

OR25 - Margarida Antunes: Environmental Risk Assessment In Mining Areas Before And After Remediation.

Isabel Margarida Horta Ribeiro Antunes[1*]

[1] Institute of Earth Sciences, University of Minho, Campus de Gualtar, 4710-057 Braga, Portugal

* Presenting Author: imantunes@dct.uminho.pt

The mining complex of Murçós is located in the Trás-os-Montes region (Bragança, NE Portugal) and belongs to the Terras de Cavaleiros Geopark. The hydrothermal W>Sn quartz veins intruded Silurian metamorphic rocks and a Variscan biotite granite. These veins contain mainly quartz, cassiterite, wolframite, scheelite, arsenopyrite, pyrite, sphalerite, chalcopyrite, galena, rare pyrrhotite, stannite and native bismuth. The exploitation produced 335 ton of a concentrate with 70 % of W and 150 ton of another concentrate with 70 % of Sn, between 1948 and 1976. Remediation processes of confination and control of tailings and rejected materials and associated phytoremediation with macrophytes from three lakes were carried out between 2005 and 2007. After the remediation processes, between 2008 and 2009, stream sediments, soils and surface water samples were collected. Most stream sediments showed deficiency or minimum enrichment for metals. Stream sediments are extremely enriched with W, while stream sediments and soils are contaminated with As. Two soil samples collected around mine dumps and an open pit lake are also contaminated with U. After the remediation, the surface waters are acidic to neutral and contaminated with F^-, Al, As, Mn and Ni and must not be used for human consumption. Open pit lake waters must also not be used for agriculture because are contaminated with NO_2^-, F^-, Al e Mn. Although the remediation processes promoted a decrease in potential toxic elements of soils and waters, the applied processes must be complemented to rehabilitate this abandoned mining area.