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I International
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Book of Abstracts



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S03P06

Mining wastes spill into a mountain stream (Douro basin, NE Portugal): Impact on water quality and macroinvertebrate assemblages

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A large spill of mining wastes into Portelo Stream a tributary of Sabor River (Douro Basin; NE Portugal) occurred in January 2010. In order to access the impact of this event, the aim of the present research was to evaluate the amplitude of the initial effects of the spill on the aquatic ecosystem, as well as, the recovery of the aquatic ecosystem after the mining spill. Water and macroinvertebrates were sampled monthly from January to July 2010, 2011 and 2012. Samplings were carried out in eight locations (P1 to P8) distributed along 20 km. Concentrations of Al, Mn, Co, Cu, Ni, Cd and As were measured in the dissolved fraction (<0.45 µm) of the water samples. Sampling stations located closer to the spill point (Portelo Stream) presented a low pH (≈ 4) and a potential toxicity due to the high Cu concentrations. The stations located at 15 km or more from the discharge point seemed not to have been significantly impacted by the mining spill. In terms of abundance and diversity of macroinvertebrate assemblages, a slow and progressive recovery was detected, with a gradual colonization by different taxa in disturbed areas, after their disappearance in January 2010. It should be emphasized the presence of organisms belonging to faunistic groups relatively sensitive to disturbance, like different insects of Trichoptera and Ephemeroptera orders, in the sites closer to the mine, three years after the disaster.