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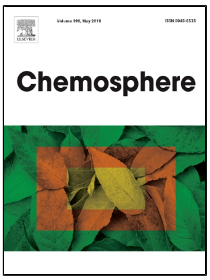


Does mercury presence in soils promote their microbial activity? The Almadenejos case (Almadén mercury mining district, Spain)

J.A. Campos, J.M. Esbrí, M.M. Madrid, R. Naharro, J. Peco, E.M. García-Noguero, J.A. Amorós, M.M. Moreno, P. Higueras

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# Does mercury presence in soils promote their microbial activity? The Almadenejos case (Almadén mercury mining district, Spain)

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## Abstract

Mercury is considered a very toxic element and important efforts are currently being made aimed at reduce or even eliminating its usage. Despite this trend, there are still sites where contamination by this metal is very marked, especially in the mining environment of Almadén where it has been exploited for thousands of years. The several forms in which Hg occurs in the soil interact differently with the organisms that live in/on it. The soil is a place where many biotic and abiotic variables act together. Through a detailed study of the edaphic characteristics of a decommissioned metallurgical enclosure, the presence of different chemical forms of Hg, the study of microbial activity (DHA) and, finally, parameters of the vegetation cover, such as specific distribution and biomass, we have tried to elucidate the effect of the presence of Hg in this precinct with a very high Hg pollution. The obtained results showed the affection patterns by which the different measured parameters vary, with special incidence to the microbial activity of the topsoil and to the specific distribution of the plants found in the studied area. The statistical multivariate analysis showed that significant correlations have been found between soil Hg fractions and between Hg fractions in plants; furthermore, soil conditions seem to be not related with Hg transfer from soils to plants. Biomass and DHA data indicate that the studied area is not affected