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Approach to study of heavy metal contamination effect on biological activity in Mediterranean Spanish soils

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Heavy metal contaminated soils results in various negative environmental effects such as a decrease in biological diversity, decline crop productivity or human exposure to toxic elements in the others. The influence of heavy metal contamination in Spanish Mediterranean soils on its biological activity was studied. Non-polluted soils and heavy metal contaminated soils were sampled from different sites affected by several industrial activities. Soil characteristics, heavy metals (As, Ba, Cd, Cr, Cu, Ni, Pb, Se, Sr, Zn and V), soil organic matter, microorganism numbers, biomass microbial carbon, soil respiration and dehydrogenase activity were determined. Except to a rice farming soil, the results indicate that soils with high concentrations of As, Cd, Cr, Cu, Ni, Pb, Sr and Zn showed low soil respiration, biomass carbon and dehydrogenase activity with respect non-polluted soils with similar characteristics. Our results provide evidence that these parameters are good approach to study of heavy metal contamination effect on biological activity in Mediterranean soils. We would like to thank Spanish government-MICINN for funding and support (MICINN, project CGL2006-09776).