

# Changes in enzyme activity and functional diversity in soil induced by Cd and glucose addition

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## Abstract

© Published under licence by IOP Publishing Ltd. Toxic heavy metal (HM) contamination is a major global issue as it may have an indirect effect on the health of soil, plants, animals and, consequently, on human health. Agricultural soils' fertilization is one of the reported sources of HM pollution in the world. In this case simultaneous input of stimulating and inhibiting agents into soil takes place, and effects of the combined influence of these agents is hardly predictable. In this study, a simultaneous inhibiting and stimulating effect of Cd and glucose on soil microbes was studied in a model experiment. Enzyme activities (phosphatase,  $\beta$ -glucosidase and cellobiohydrolase) and functional diversity (BIOLOG®EcoPlates™) were assessed as a test functions. Cd (300  $\mu\text{g Cd g}^{-1}$ ) amendment had a negative effect only on phosphatase activity. Glucose (3 mg C  $\text{g}^{-1}$ ) addition inhibited  $\beta$ -glucosidase activity and stimulated functional diversity. In joint addition of Cd and Glucose the leading effect belonged to that agent which had the greatest effect in case when it was added separately.

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