



## **The use of bacteria for detecting toxic effects of pollutants in soil and water**

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Microbial abundance and diversity are essential for sustaining soil structure and function and have been strongly linked to human health and wellbeing. Antimony (Sb) in the environment can present an ecological hazard and depending on concentration can be lethal. The toxic effects of Sb(III) and Sb(V) on the model soil bacterium *Azospirillum brasilense* Sp7 were assessed in exposure-dose-response assays and water samples from an Sb contaminated creek were analyzed for bacterial mortality. In both cases, Sb(III) and Sb(V) greatly affected the survival of *A. brasilense* Sp7 cells. The Sb(III) had a greater toxic effect than Sb(V) at all concentrations tested. Critical concentrations of Sb also caused variant colonies to appear, indicating both acute and sub-lethal effects, which were dose and time dependent. This work demonstrates the usefulness of *A. brasilense* as an indicator species to detect harmful effects of an environmental pollutant of emerging concern.