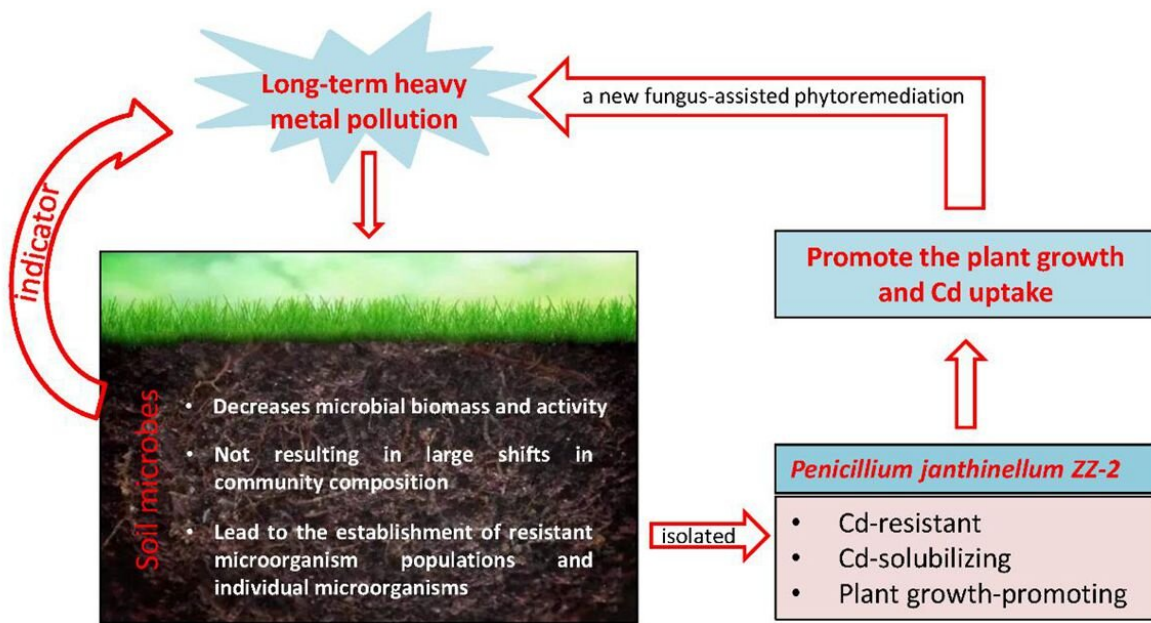


Microorganism that remediates cadmium-contaminated soil

September 30 2021, by Zhang Nannan



Proposed model for the *Penicillium janthinellum* ZZ-2-mediated protective plant responses to Cd stress. Credit: XIE Yan

In recent years, phytoremediation (the utilization of plants, animals and microorganism to take up or immobilize hazardous substances from contaminated soils) has been widely applied to the remediation of Cadmium (Cd) contaminated soil. It's essential to screen natural microbes that being capable to concentrate hazardous substances during

the development of phytoremediation technology.

Researchers from the Wuhan Botanical Garden of the Chinese Academy of Sciences (CAS) investigated the abundance and composition of microbial community in heavy metal polluted soil. They isolated a Cd resistant microorganism, "Penicillium janthinellum ZZ-2," from heavy metal contaminated soils, which was proven to enhance the growth and Cd uptake of bermudagrass.

Long-term exposure to heavy metal contamination reduced both microbial biomass and activity, but did not result in large shifts in community composition. ZZ-2 inoculated bermudagrass plants showed higher [plant growth](#), reduced Cd-toxicity symptoms and increased accumulation of Cd in the shoots and roots under Cd stress.

ZZ-2 contributed to the protection of plants from the inhibitory effects of high concentrations of Cd, and promoted the plant growth and Cd uptake by production of indole [acetic acid](#) or by solubilization of Cd in soils.

This study suggests that Penicillium penicillium ZZ-2 could be a potential supplement to enhance the phytoremediation efficiency of plants in [heavy metals](#) contaminated soils.

This work entitled "Identification of Cd-resistant microorganisms from heavy metal-contaminated soil and its potential in promoting the growth and Cd accumulation of bermudagrass" has been recently published in *Environmental Research*.

More information: Yan Xie et al, Identification of Cd-resistant microorganisms from heavy metal-contaminated soil and its potential in promoting the growth and Cd accumulation of bermudagrass, *Environmental Research* (2021). [DOI: 10.1016/j.envres.2021.111730](https://doi.org/10.1016/j.envres.2021.111730)

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