

# **Restoration of polluted soils with fly ash: The remedial role of *in situ* microbial populations**

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## **ABSTRACT**

Industrial activity in the past has unfortunately taken place without due consideration of the environmental consequences. Pollution of soils affects its pH, structure and fertility since they become relatively sterile to all but the most resistant microbial life forms.

Certain indigenous micro-organisms are, however, able to degrade pollutants in soil leading to *in situ* rehabilitation. Optimising their role in this process depends on understanding how they function.

Chemical changes taking place within the soil initially impact microbial communities because they are extremely sensitive to environmental changes. Therefore, monitoring the changes in the microbial community within target ecosystems can prove to be an effective means of determining not only the impact of pollution but also the efficacy of the remediation.

Pot trials were carried out by adding various amounts of a polluted oil to the soil. Subsequently, various levels of a specific fly ash were added to the pots in order to remediate the soil and restore fertility.

Using culture dependent and independent (denaturing gradient gel electrophoresis) microbiological techniques the status of microbial communities of the trials have been mapped. Changes in microbial communities during the pedogenesis of the soil-ash growth medium are evident as soils weather and begin to rehabilitate. These results will be reported.

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