

## **Redevelopment of biological activity in stripmine spoils: saprotrophic fungi – abstract**

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The impact of severe soil disturbance on soil fungal community composition and function and how this relates to the resultant decomposition/mineralisation process is very poorly understood. Consequently, research was conducted to determine: (a) to what degree fungal community structure and potential function are altered in a sub-alpine coal mine spoil (Luscar, Alberta), and (b) how do alterations in the fungal community affect patterns of fungal colonisation and decomposition of plant residues deposited on recently mined soil.

The destruction of the organic mat and upheaval of the mineral soil during mining resulted in a significant reduction in fungal biomass and number of fungal species. Substrate utilisation studies conducted in the laboratory suggested that, functionally, the fungal community shifted from one of greater specialisation in the undisturbed soil to one of lesser specialisation in the mined soil. Emendation of the minespoil with peat, sewage sludge or fertiliser changed the soil microbial biomass and the fungal community composition, but these changes had no significant effect on the short-term decay rates of grass litter deposited on the spoil surface. It is suggested that during the initial stages of soil genesis, the soil fungi play a minor role in determining short-term rates of litter decay and nutrient release. Rather, the fungi active in litter decay comprise a structurally and functionally separate community from that found in the soil.

### **Reference**

- Visser, S. 1985. Management of microbial processes in surface mined land reclamation in Western Canada. In *Soil Reclamation Processes: Microbiological Analyses and Applications*, eds. Tate, R. L. & Klein, D. A., pp. 203–241. New York: Marcel Dekker.