

Abstract 2674

EFFECTS OF LAND USE INTENSITY ON EUROPEAN SOIL BACTERIAL, FUNGAL AND ARCHAEAL COMMUNITIES

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Session: S11.02- SOIL BIODIVERSITY AND ECOSYSTEM SERVICES

Text: *Whilst the importance of soils and their contribution to ecosystem services provision are well recognised, there is a paucity of knowledge on how particular land-use practices affect different types of soil organisms, and subsequently whether this affects soil functioning.*

The seventh framework programme EcoFINDERS project (Ecological Function and Biodiversity Indicators in European Soils) aims to "Decipher the links between soil biodiversity, activities, functioning and ecosystem services". Through this project we have examined soil microbes at a number of European locations ranging from Iberian grassland to boreal forest. At each field site a gradient of land-use intensification has been established permitting investigation of the effects of different land management strategies on microbial communities across a range of climatic zones and soil types. This work focuses on how the diversity and community structure of the different microbial groups are affected at local and regional scales, and the environmental parameters responsible for the perceived differences. We specifically targeted bacteria, archaea and fungi as indicators, and present molecular data showing differential effects in response to anthropogenic and natural environmental gradients. Our results highlight the effect of land-use change on soil microbial communities across Europe and adds to the understanding of how belowground organisms are affected by above ground practices.