Scientific Committee: Biotechnology

Research Work Title

The Microbiome of Surface Soils in Global Soil Samples

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Country | Sweden

Field | Biology

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Abstract

Microbes are fundamentally important for soil carbon and nutrient cycles, yet their diversity and distribution remain largely unknown. Recent advances in high-throughput sequencing techniques enable us to determine millions of genes and identify thousands of microbial taxa from a single sample. We have optimized and used these methods to understand various aspects of the biogeography of soil microbes. This line of research has resulted in unprecedented insights into the global distribution of soil microbes, including:

- Soil microbes show a global latitudinal gradient with the highest bacterial diversity in temperate zones across all major biome types in contrast to many other organisms; and
- Soil bacterial and fungal community composition and functional potential are strongly affected by soil and climatic factors. A better understanding of how soil microbes respond to climate change represents important steps toward developing strategies to protect and restore soil ecosystems.

Biography

Dr. Mohammad Bahram is an associate professor at the Swedish Agricultural University as well as at Tartu University in Estonia. He obtained his Ph.D. degree from Tartu University and was awarded a postdoctoral fellowship at Uppsala University. His current research areas focus mainly on understanding the diversity and functions of soil and plant-associated microbiota. This line of research has implications for predicting future responses to global change, including potential functional shifts and range expansions of plants and their symbiotic partners. Dr. Bahram has published over 100 scientific articles, and he has been an invited speaker at several scientific events to present his research on soil microbes. He has received several national and international distinctions, including a career award from SLU (Sweden).