

IS THERE A LINK BETWEEN BIODIVERSITY OF PLANTS AND SOIL MICROORGANISMS?

Summary

“Biodiversity” became one of the most popular ecological terms all over the world and is defined as “the variability among living organisms from all sources including [...] terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part: this includes diversity within species, between species and of ecosystems”. Despite popularity of the term “biodiversity” and potential importance of diversity for ecosystem functioning the state of our knowledge on biodiversity is far from being satisfactory due to complexity of biological interactions and methodological problems.

Soil microorganisms and plants are the most important contributors to the processes of matter turnover and energy flow, as plants are main producers of biomass and soil microorganisms are main decomposers of organic matter. Many authors noted

a positive relationship between diversity of plant and microbial communities in both rhizosphere and bulk soil in various ecosystem types. However, the relationship may depend on the plant group of concern i.e. herbaceous plants, ferns, trees etc. On the other hand, plants possessing specific traits such as nitrogen-fixing legumes may particularly support microbial performance. Because of both positive and negative strong interactions between microorganisms and plants and due to the fact that decrease in plant or microbial diversity may potentially lead to deterioration of crucial ecosystem functions, understanding and protection of biological diversity is of primary importance. Further research is needed to gain a profound insight into interactions between plant and soil microbial communities in both natural or semi-natural or anthropogenically transformed ecosystems.