

Land-use effects on soil microbiota diversity and composition in the continental biogeographic region

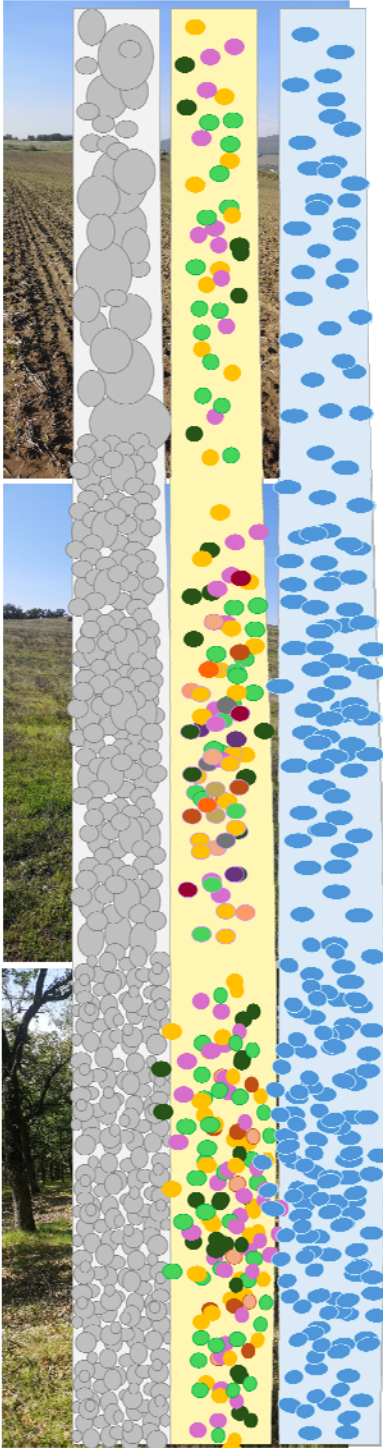
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Background

Land use directly alters abiotic soil properties - the non-living chemical, physical, and hydrological characteristics that determine soil health and ecosystem function

Texture Nutrients Moisture



Methods

Land use gradient was applied for soil samples collection from Alba county – Continental biogeographic region

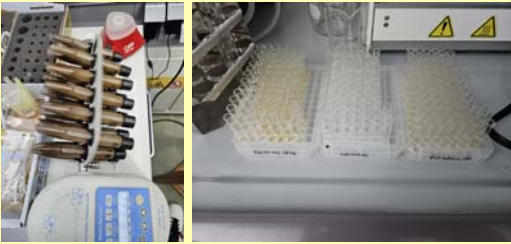


Forest

Grassland

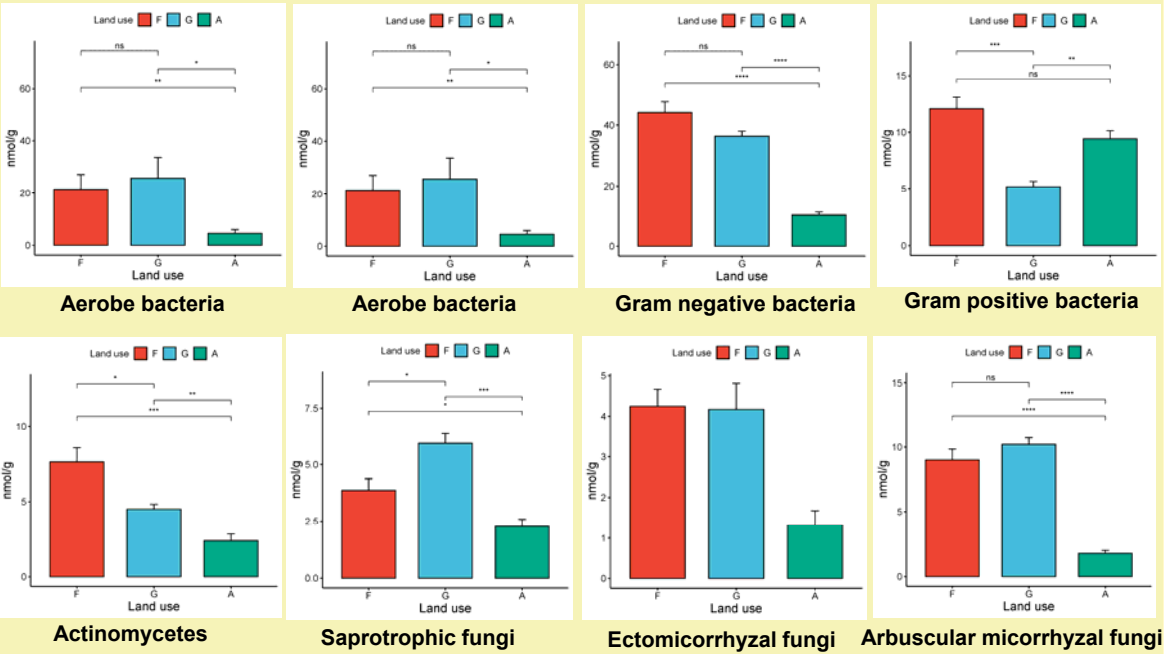
Agriland

PLFA approaches was used for soil microbiome abundance and phenotypic structure assessment



Soil sample preparation

Results and discussions



Microorganisms are highly sensitive to edaphic (soil-related) shifts because their metabolic niches are tightly coupled to the physical and chemical environment.

Conclusions

Land use conversion directly reduces total microbial biomass and shifts community structure, with intensive agriculture depleting fungal abundance while driving bacterial assembly toward simpler, highly competitive networks.

This drop in abundance and loss of structural complexity ultimately compromises the soil microbiome's capacity to drive essential nutrient cycling and support plant health.

Acknowledgement

<https://icia.ro/en/soilserv>

Project: SOILSERV

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