XIV MEDECOS
&
XIII AEET meeting

Human driven scenarios for evolutionary and ecological changes

Abstract book

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Seville, Spain

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Sp.07-3-Oral

Foliar trait variation along a rainfall and soil nutrient gradient in Chile and contrasts between Mediterranean type ecosystems

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Variations in precipitation, temperature, and soil nutrient availability are assumed to promote convergence in plant traits. The range of foliar trait variation is generally considered to represent plant adaptations to environmental factors that affect plant growth and community composition. In this study we will explore if traits of species from within Chilean and Mediterranean Type Ecosystems (MTE) follow worldwide trends (e.g. the leaf economic spectrum) and discuss whether tends are related to nutrient or water use efficiency. Preliminarily, we found that within worldwide leaf traits spectrum, mediterranean woody species tend to have higher mean LMA compared to mean LMA of other ecosystems. However, mean LMA of Chilean species had lowest LMA and highest coefficient of variation. We will discuss whether traits are more correlated with climatic variation or with nutrient limitation, either soil P or N availabilities.

Sp.07-4-Poster

A functional approach to explore the drivers of mycorrhizal trait variability in Mediterranean plant communities

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Mycorrhizal symbiosis may be critical under stressful conditions, especially in Mediterranean forests constrained by water stress and resource scarcity. This study is particularly novel due to the use of a community-level, trait-based approach to explore the drivers of mycorrhizal trait variability in nine Mediterranean plant communities of south Spain distributed along a gradient of soil resources. Thus, we explored how the degrees of colonization by ectomycorrhizal (ECM) and arbuscular mycorrhizal (AM) fungi (including AM vesicles) were related to other root and leaf traits associated with the use of soil resources. Moreover, we identified the main abiotic factors driving this mycorrhizal trait variability. And finally, we explored if the variability of community mycorrhization was due to plant species turnover or intraspecific differences among the selected sampling sites. Our results showed that ECM colonization was positively related to the abundance of evergreen species and to tissue dry matter content (in leaves and roots), but negatively to specific root length and specific leaf area. The best abiotic predictor of ECM colonization was soil moisture, with higher ECM colonization in drier sites. However, AM colonization was not related to any of the plant traits studied and was positively related to soil Cu and other physico-chemical soil properties. Changes in community mycorrhization were primarily due to plant species turnover with a remarkable importance of plant intraspecific variability in the case of AM colonization (especially in vesicles). The proposed mycorrhizal trait-based approach could be useful to integrate the influence of mycorrhizal associations on plant community functioning.