**Functional diversity under changing environments: impacts on ecosystem services**

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Mediterranean drylands are one of the most vulnerable ecosystems in the face of global change. Particularly, climate change (e.g. air pollution) effects ecosystem structure and functioning constitute a serious threaten to the goods and services they provide. Thus, it is urgent not only to identify the different drivers of ecosystem services, but also to asses how they are affected by environmental changes. In this context, functional diversity has emerged as a key concept in ecological research, since it links the range, variety and abundance of functional traits at the community level to their effects on ecosystem processes, and thus, on ecosystem services delivery. In dryland ecosystems, terricolous lichens, mosses, and cyanobacteria forming “Biocrusts” can be on one of the most abundant life forms. They play important roles in multiple compartments of global system (e.g., atmosphere, pedosphere, biosphere), and also in the interaction between them. However, their functional diversity and contribution to ecosystem services have been understudied. The project “Functional diversity of Biocrusts: towards ecosystem services quantification in drylands” (“BCSES”), focuses on Biocrust communities aiming to disentangle the effects of their functional traits and functional diversity on ecosystem processes. We will study Biocrusts multifunctionality along environmental gradients in drylands worldwide, including the Mediterranean region. After that, we will have a more precise measure of the critical functions they perform in drylands and how they respond to environmental factors (e.g. climate). The final objectives of the project are to quantify the contribution of Biocrusts to ecosystem services in drylands by modelling the distribution of functional units and assess the potential impacts of environmental changes on the services they provide. This knowledge will complement and improve the scope of management, conservation and restoration strategies in the face of global change, traditionally focused on species diversity, rather than functional diversity, and regarding vascular plants almost exclusively.