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Fungal diversity across conventional, oasis and organic farming systems in arid areas of Oman

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This study examined fungal diversity in conventional, oasis and organic farms in arid areas of Oman. Fungal diversity was assessed using pyrosequencing and culture-based techniques from crops of date palm, acid lime, mango, cucumber and tomato. Pyrosequencing revealed that fungal diversity was variable among different farming systems as well as among different crops within the same farm. Fungal diversity was high in organic farms compared to other farms. In addition, the rhizosphere of date palms had more fungi compared to other crops. Ascomycota was the dominant phylum in most of the soil samples. The other common phyla were *Microsporidia*, *Chytridiomycota* and *Basidiomycota*. Classes *Dothideomycetes*, "Teresporidia", *Sordariomycetes* and *Eurotiomycetes* and fungal genera *Systenostrema*, *Hypocrea, Cladosporium* and *Oidium* dominated soils from all samples. Principle component analysis revealed that fungal diversity was affected by the farming system as well as the type of crops grown. Pyrosequencing was more efficient (4-6 times) than culture based techniques for estimating fungal diversity. Our study indicated that differential levels of fungal diversity are associated with different farming systems and crops, and effects of cultural practices, plant species, soil type and other factors on fungal diversity are discussed.

Biography

Elham Kazerooni is a PhD student at the Department of Crop Sciences, College of Agricultural and Marine Sciences, Sultan Qaboos University, Oman. She is doing her PhD in the field of plant pathology. Elham has one paper published in Frontiers in Plant Sciences. Her focus in the PhD program is on the population structure of beneficial and pathogenic fungi in different cropping systems.

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