

Fungal Diversity and the Occurrence of Antagonistic Fungi in Organic and Conventional Farming Systems in Oman	العنوان:
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## 6. Conclusion and Recommendations

Our studies have shown that pyrosequencing was superior over direct plating in estimating fungal diversity in soil. Fungal diversity can vary from one farming system to the other. Organic farming was found to favor more fungal diversity compared to conventional farming. *Ascomycota* and *Microsporidia* were the two most common fungal phyla in farm soils. Most of the fungal species on soils are saprophytic and some have potential antagonistic activities against fungal pathogens. *Talaromyces pinophilus* was found for the first time to reduce mortality in cucumber due to *Pythium* and *Rhizoctonia*. In addition, *Trichoderma asperellum* proved for the first time in Oman to be a biocontrol agent for *Pythium* and *Rhizoctonia*-induced damping-off of cucumbers.

Future studies should address factors affecting fungal diversity in conventional and organic soils. In addition, studies should compare fungal diversity across crops within the same farm and also across locations. Studies should investigate the potential of biocontrol agents in controlling other important soil borne plant diseases in Oman. The mechanisms by which *Talaromyces pinophilus* and *Trichoderma asperellum* suppress *Pythium* and *Rhizoctonia* damping-off disease deserve investigation.