1-6. Effect of Arbuscular Mycorrhizal Fungi Inoculation on the Root Fungal and Bacterial Communities of Bunching Onion

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Root microbiota is crucial for plant health. Arbuscular mycorrhizal fungi (AMF) are important members of root microbial community as they provide several soil nutrients to the plant, especially phosphorus. AMF can be used as biofertilizers for sustainable agriculture. Bacteria are the third component of arbuscular mycorrhizal associations since it was shown that development and performance of AMF can be mediated by them. The interactions between AMF and bacteria can have important consequences in agriculture. Up to now, several reports have been published showing the effect of AMF inoculation on the bacterial and fungal communities. However, these studies were generally performed under highly controlled conditions and the techniques used in them have significant resolution limitations. Additionally, the majority of field inoculation efforts have been carried out in severely degraded soils or soils with very low inoculum potential. In this study, we used high-throughput sequencing to perform a combined investigation of root fungi and bacteria of bunching onion (*Allium fistulosum* L.) inoculated with a commercial AMF inoculum and grown under field conditions with native AMF communities. We found that the total abundance of the inoculated AMF varied among the fields and reduced with time. Plant age and inoculation had significant impacts on the root fungal and bacterial assemblages. The effect of inoculation was more pronounced on the early stages of plant growth. To our knowledge, this is the first study performed in large scale to reveal the effects of AMF inoculation on the root fungal and bacterial assemblages in soils with high inoculum potential.