

SHIFT 02-371 - INFLUENCE OF RAIN SHELTER ON THE FUNGAL BIODIVERSITY OF APPLE ORCHARD (ID 1561)

Topic

AS06. Applied mycology

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Abstract Body

The use of rain shelters has been proposed as an alternative approach to prevent harmful effects of the rainfall and to reduce the application of plant protection products in apple orchards. The environmental changes induced by rain shelter system, as lower leaf wetness and higher average temperature, can affect the plant-microbe interactions. In this work was assessed the change in fungal communities in aboveground tissues (leaf, bark, flower and fruit), on two apple cultivars (Fuji and Golden), from orchard grown under rain shelter and open field condition, across two seasons. Under the rain shelter condition, no fungicides were applied or only a reduced fungicides program focusing on powdery mildew. Whereas integrated pest management spraying program was applied in open field. Metabarcoding sequencing of the fungal internal transcribed spacer (ITS2) was conducted to analyse the difference between the fungal communities on apple plants grown inside and outside the rain shelter. The majority of fungal sequences were assigned to Ascomycota and Basidiomycota. The most abundant genera were *Aureobasidium* (14.58%), *Cladosporium* (12.11%), *Alternaria* (3.98%), *Podosphaera* (2.89%), and *Sporidiobolus* (2.43%). A significant difference (PERMANOVA, $p = 0.02$) in a beta diversity ordination was observed in the fungal community composition between the plants inside and outside the rainshelter. Also, the composition of the fungal communities in the two cultivars was significant different (PERMANOVA, $p = 0.001$). The rain shelter system was found to have a great impact on the apple mycobiota, affecting both the overall community structure and abundance of specific taxa.