Impact of genetically modified crops on rhizosphere and root interior microbial communities. (S03-germida165120-Oral)

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Abstract:

Non-target effects of transgenic plants on native flora and fauna including soil microorganisms are one of the least understood areas in the environmental risk assessments of genetically modified plants. Early studies showed that alterations in plant root exudates associated with transgenic plants could affect the composition of the rhizosphere microbial community. These changes could have either positive or negative effects on plant growth and health, and in turn, ecosystem sustainability. We assessed the impact of genetically modified canola plants on rhizosphere and root-interior microbial communities. This multiple field site, multiple field year study used CLPP, FAME and T-ARDRA to show that root interior and rhizosphere bacterial communities associated with a GM variety of canola were different from communities associated with conventional canola varieties, but these effects were dependent on sampling date and field site. Conclusions about the impact of transgenic plants on soil ecosystems were complicated by the dynamic nature of microbial communities and the major influence that field site and seasonal variability exert on biodiversity of soil microbial communities.

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