Isolating a functionally relevant guild of fungi from the root microbiome of Populus

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Background

• Plant roots interact with a complex community of root-associated bacteria and fungi that are essential for maintaining plant health. This work sought to improve our understanding of the structure and function of plant-fungal interactions in the rhizosphere of Populus.

Science

• Over 1800 fungal isolates were obtained from surface sterilized roots of Populus, many of which are unique and rarely-cultured.
• The most dominant taxa associated with Populus were isolated from both eastern and western US soils, with no clear pattern of biogeographical provenance.
• Most of the isolated fungal OTUs included Leptodontidium, Cylindrocarpon, Atractiella, and Ilyonectria. Low abundant ones included Rhizoctonia, Cadophora, Corticiaceae, Mortierella, and Flagelloscypha.
• Many of the sequenced fungal isolates represent previously uncultured fungi.

Significance

• This research makes a significant contribution to establishing baseline resources for understanding the core members of the endorrhizal guild of fungi able to live inside Populus roots.

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