



Is the plant rhizobium engaged in interactions between *Pectobacterium* and plants?

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Abstract

Phytopathogens, to infect a host, must bypass the host's defence system and the additional barrier their plant microbiome provides. To determine whether the plant microbiome affects the pathogen and determines its interactions with the plant or vice versa, we investigated the changes in the plant rhizobiome composition during plant-bacteria interactions.

Using the 16S rRNA amplicon sequencing approach, we determined the microbiome composition of soil and rhizosphere of *Arabidopsis*, Chinese cabbage, Calla lily and Turmeric before and after inoculation with *Pectobacterium*. First, we counted the number of cultivable bacteria in each sample, and pure bacterial strains were isolated. Then the interaction between the strains from the rhizosphere and *Pectobacterium* was studied.

The sequence analysis of the 16S rRNA gene showed that the biodiversity of the soil microbiome is significantly lower than those observed in the case of plants' rhizosphere. The microbiome of each plant has different species composition.

Interestingly, it was observed that *Pectobacterium* significantly reduced the number of taxa in the rhizosphere of each plant. However, no antagonism between strains isolated from the rhizosphere and *Pectobacterium* was found. The obtained results indicate the negative impact of *Pectobacterium* on the biodiversity of the plant microbiome, which in turn may lead to the breakdown of their protective barrier and the development of disease symptoms.

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