

## **Rhizosphere microbiome and plant disease suppression**

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Microbial communities play a pivotal role in the functioning of plants by influencing their physiology and development. While many members of the rhizosphere microbiome are beneficial to plant growth, also plant pathogenic microorganisms colonize the rhizosphere striving to break through the protective microbial shield and to overcome the innate plant defense mechanisms in order to cause disease. Although the importance of the rhizosphere microbiome for plant growth has been widely recognized, for the vast majority of rhizosphere microorganisms no knowledge exists. To enhance plant growth and health, it is essential to know which microorganism is present in the rhizosphere microbiome and what they are doing. In this context, it is important to know the main functions of rhizosphere microorganisms and how they impact on health and disease. Considering that plants rely on their associated microbiome for specific functions We discuss the mechanisms involved in the multitrophic interactions and chemical dialogues that occur in the rhizosphere. Finally, we highlight several strategies to redirect or reshape the rhizosphere microbiome in favor of microorganisms that are beneficial to plant growth and health.