

CONFERENCIA.

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Plant microbiome - The physiology of symbiotic plant nutrition

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Plants used to be regarded as individuals, but we know now that their phenotypes result from a complex multitude of genomes, known as the plant microbiome. Intriguingly, the same types of microbes keep showing up across the same plant varieties, species or even families. This is the core microbiome that is winnowed from what is a highly complex and diverse soil microbial community. In a healthy soil, plants create a gradient of microbial diversity with a steep decline closer to the roots, then on the roots and finally inside the plant, where perhaps only 200 species gain a pass. Plants actively recruit microbes that can provide them with services, from nutrient sequestration to suppressing pathogen growth. A number of 'good' bacteria have now been linked to heightened resilience and yield in the face of drought, heat stress, salinity and plant disease. Inoculating crops with these could not only improve yields but also fight off disease without the need for chemicals or genetic modification.

In this work we review and integrate the mechanisms allowing the symbiotic functionality between plants and microbes and give hypothesis on how to boost yields by managing microorganisms.