The impact of defense hormones on the interaction between plants and the soil microbial community

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Stellingen behorende bij het proefschrift

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Propositions

1. A tiny inoculation of sterilized soil with a live microbial community leads to a visible reduction in the growth of *Jacobaea vulgaris*. (This thesis)

2. Activation of the SA signaling pathway in *Jacobaea vulgaris* mitigates the negative effect of soil inoculation on plant growth. (This thesis)

3. Application of SA on leaves of *Jacobaea vulgaris* influences different bacterial genera in the rhizosphere, however, the responsive genera vary between generations. (This thesis)

4. The negative effects of the soil microbial community on plant growth only last for the first weeks of plant growth. (This thesis)

5. Micro-ecology opens up our perspective to macro-ecology. For example, the potential of plant-soil-interactions to shape community and ecosystem responses has been convincingly demonstrated through highly controlled micro-ecology experiments. (Van der Putten et al., Functional Ecology, 2016).

6. Phytohormones produced by root-associated microbes may prove to be important metabolic engineering targets for inducing host tolerance to abiotic stresses. (Egamberdieva et al., Frontiers in Microbiology, 2017)

7. Recent advances in marker gene, genomic and metagenomic analyses have greatly expanded our ability to characterize the soil microbiome both with respect to taxonomical composition and the presence of functional genes. We are however still far from a broad understanding of the factors that shape the dynamics of soil microbial communities across space and time. (Noah, Nature Reviews Microbiology, 2017)

8. Plant-pathogen research should focus more strongly on uncovering the signals involved in plant communication with non-pathogenic microbes. (Randy et al., Plant Signal Behavior, 2009).

9. An ecologist with an interest in plant-microbe interactions should also be an experimental microbiologist.

10. Storytelling is needed as much in scientific writing as in fiction writing, the difference is that the former is based on experimental data instead of imagination.

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