



COLLABORATION OPPORTUNITY

CMK: your partner for future-proof PLANT GROWTH & DEVELOPMENT

INTRODUCTION

The Centre for Environmental Sciences (CMK) at Hasselt University has a long tradition (from 1976) in the study of the physiological, biochemical and molecular aspects of the effects of abiotic stress in plants. Moreover, CMK is a renown pioneer (from 1996) in the field of plant-microbe interactions. The role of plant-associated micro-

organisms (bacteria and fungi) during plant growth and development and the exploitation of these partnerships to improve biomass production and bio(phyto)remediation processes and to combat plants pathogens belong to the core expertise of the CMK. Next to plant-associated micro-organisms, soil amendments (e.g. biochar, rock dust) are under investigation for their potential to improve soil quality with respect to water holding capacity, nutrient balance, carbon content and phytotoxicity. Merging the above-mentioned expertise, makes CMK a perfect candidate for collaboration in the domain of future-proof plant growth and development.



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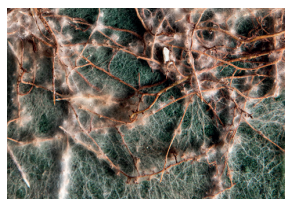
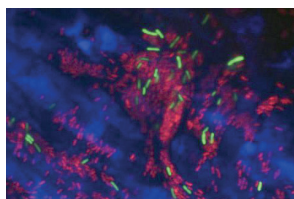
KNOWLEDGE IN ACTION

PLANTS

The plants under investigation range from standard model plants (e.g. *Arabidopsis thaliana*, *Lupinus luteus*), agricultural crops (e.g. bean, zucchini, tomato, maize, rapeseed, hemp, tobacco), horticultural (e.g. common ivy, Sedum) and woody species (e.g. poplar, willow, plane tree).

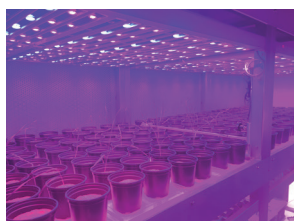
AMENDMENTS

CMK is an expert in the exploitation of plant-microbe partnerships by means of inoculation of promising, plant-growth promoting bacteria and/or fungi. Moreover, expertise has been built up in the application of biochar, rock dust and other soil amendments to improve soil/substrate quality.



GROWTH SYSTEMS

CMK provides a broad range of experimental set-ups going from small-scale high-throughput growing systems, standard pot-experiments, closed cuvette-experiments (e.g. transpiration of volatile organics), to full-scale field experiments. The key infrastructure facilitating these experiments are LED-light, highly sophisticated climatized plant growth chambers and a light/humidity controlled greenhouse. Moreover, the world-wide unique Ecotron facilities of the CMK allow to mimic future climate conditions and study its impact on plant growth and development, soil life and nutrient cycles.



ANALYSES

Plant level

- General plant health and quality
- Plant fresh/dry weight
- Element uptake and translocation
- Organics uptake and transpiration of volatiles
- Plant-microbe interactions

Soil/substrate level

- Element availability
- Water holding capacity
- Cation exchange capacity
- Organic matter
- Soil microbiology

SOME REFERENCES

Scientific publications (highlights)

Beckers et al. PNAS 2016
 Thijs et al. Frontiers in Microbiology 2016
 Weyens et al. Current Opinion 2009
 Barac et al. Nature Biotechnology 2004

European projects

INTENSE (ERANET)
 GREENLAND (FP7)
 ENDEGRADE (FP5)
 DIFPOLMINE (LIFE)

Services



BUSINESS DEVELOPER

Dr Nele Witters
 Centre for Environmental Sciences
 E nele.witters@uhasselt.be

Dr Marijke Jozefczak
 Centre for Environmental Sciences
 E marijke.jozefczak@uhasselt.be