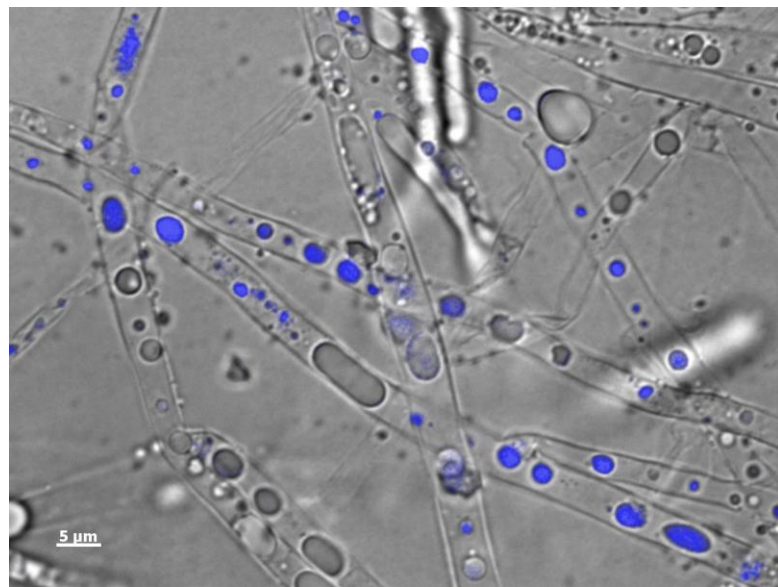




MODELLING THE FUNGAL HIGHWAY: MICROBIAL TRANSPORT AND INTERACTIONS WITHIN A FUNGAL NETWORK

Background

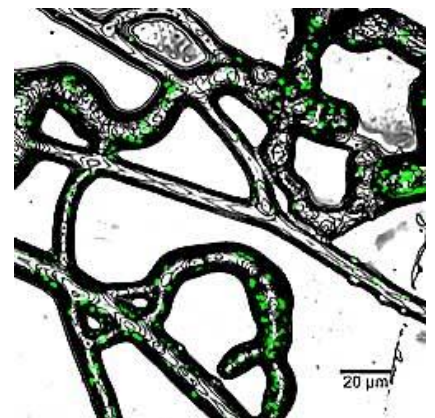
Recent research has demonstrated that fungi can serve as vectors for the dispersion of microbes, in particular for the purpose of degrading pollutants. Since microbial dispersion in soil is often severely restricted by spatial heterogeneities (for example the air gaps between soil particles), using a fungal network as a “highway” to reach a new microhabitat may be a crucial mechanism that determines a microbe’s ecological success.



Scope of the thesis

The goal of this thesis is to formulate a spatially explicit model of microbial dispersion across a fungal network. The model will also incorporate interactions between individual microbes, which are governed by simple game theoretical rules that nonetheless can succeed in reproducing the spatial patterns typically found in natural microbial systems.

In addition, the student will examine how varying environmental conditions affect the ecological success of the microbes. We will resort to the high-performance computing infrastructure of Ghent University for running *in silico* experiments.



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BACKGROUND

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