PROPOSITIONS

Belonging to this thesis

Microbial invasions in living soils: Mechanisms, consequences, and roles in ecosystem functions and services

1. Microbial invasion is an intrinsic process of microbial community assembly, which is influenced by the current assemblage mechanisms and shapes future assembly processes. (Chapters 1, 2, 3, and 7)

2. Revealing the indirect and cascading effects of microbial inoculants through changes in soil microbiomes is essential for sustainable agricultural management. (Chapters 2 and 4)

3. Microbial consortia perform better than single strains when introduced in natural soil to promote plant growth and pollution bioremediation. (Chapter 4)

4. The consequences of community-driven invasion are rooted in both ecological and evolutionary impacts on resident communities. (Chapters 5 and 6)

5. Introduced invaders can compete with residents, leading to a lose-lose situation where both invaders and residents are impacted by invasions, even if the size of invasive communities is small. (Chapters 5 and 6)

6. Competition-driven niche segregation exists within soil microbial communities. (Chapters 5 and 6)

7. An interaction-oriented mechanistic model can merge single-strain and community-driven invasions in soil. (Chapters 7 and 8)

8. “To see a world in a grain of sand and a heaven in a wild flower.” (William Blake)

9. “Of Mountain Lu we cannot make out the true face, for we are lost in the heart of the very place.” (Su Shi)

Xipeng Liu (刘曦鹏)

Groningen, The Netherlands