Strain level variation in pathogenic invaders alters rhizosphere communities



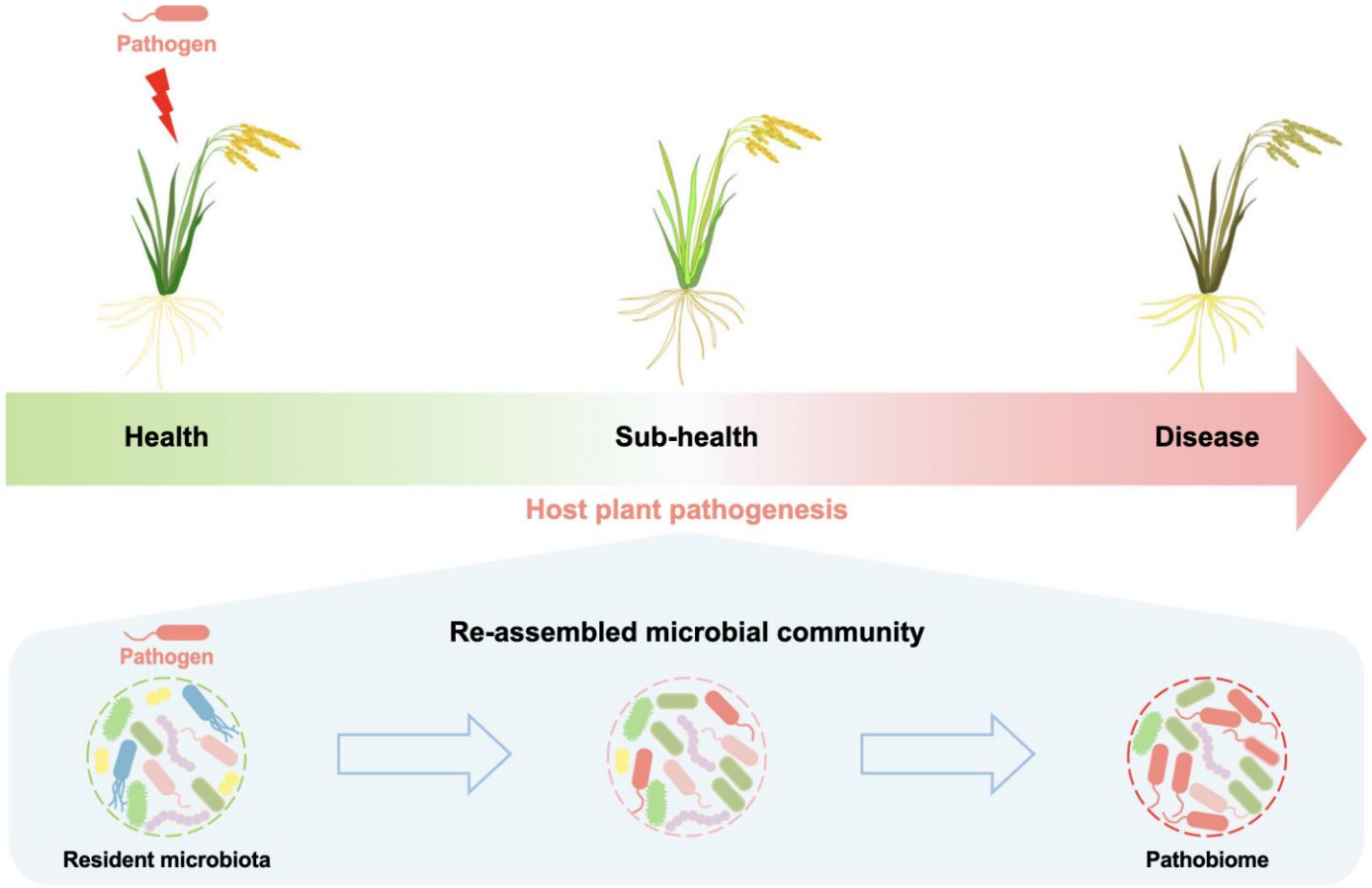
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Introduction

Plant pathogens are typical microbial invaders



Pathogen invasion disturbs resident microbes



Ralstonia solanacearum



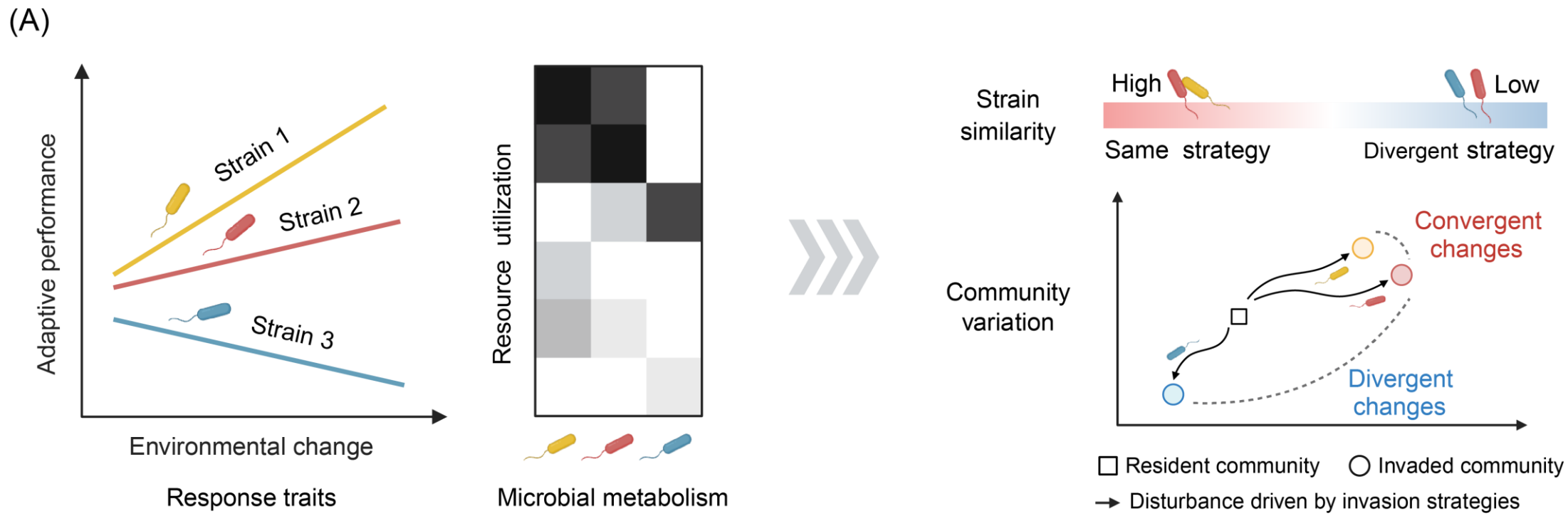
Health



Disease

Lv *et al.*, **iMeta**, 2023

Question



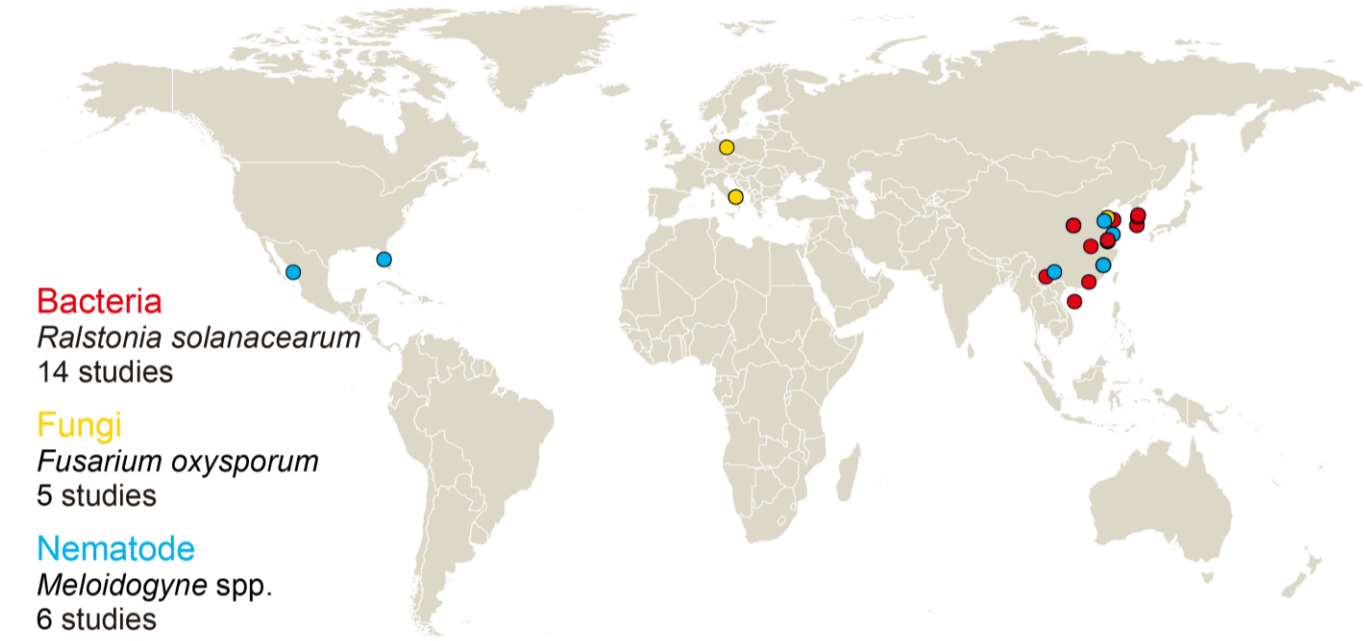
Questions:

- Do different pathogen strains induce distinct responses in resident microbial communities?
- How is pathogen trait variation associated with resident microbial community assembly?

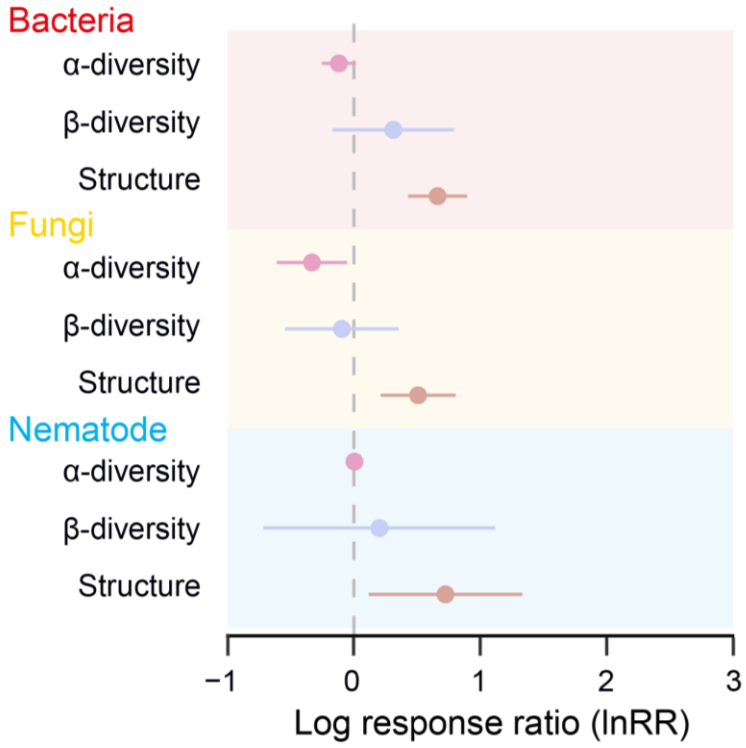
Results

1 | Pathogen invasion alters rhizosphere bacterial communities

(B)

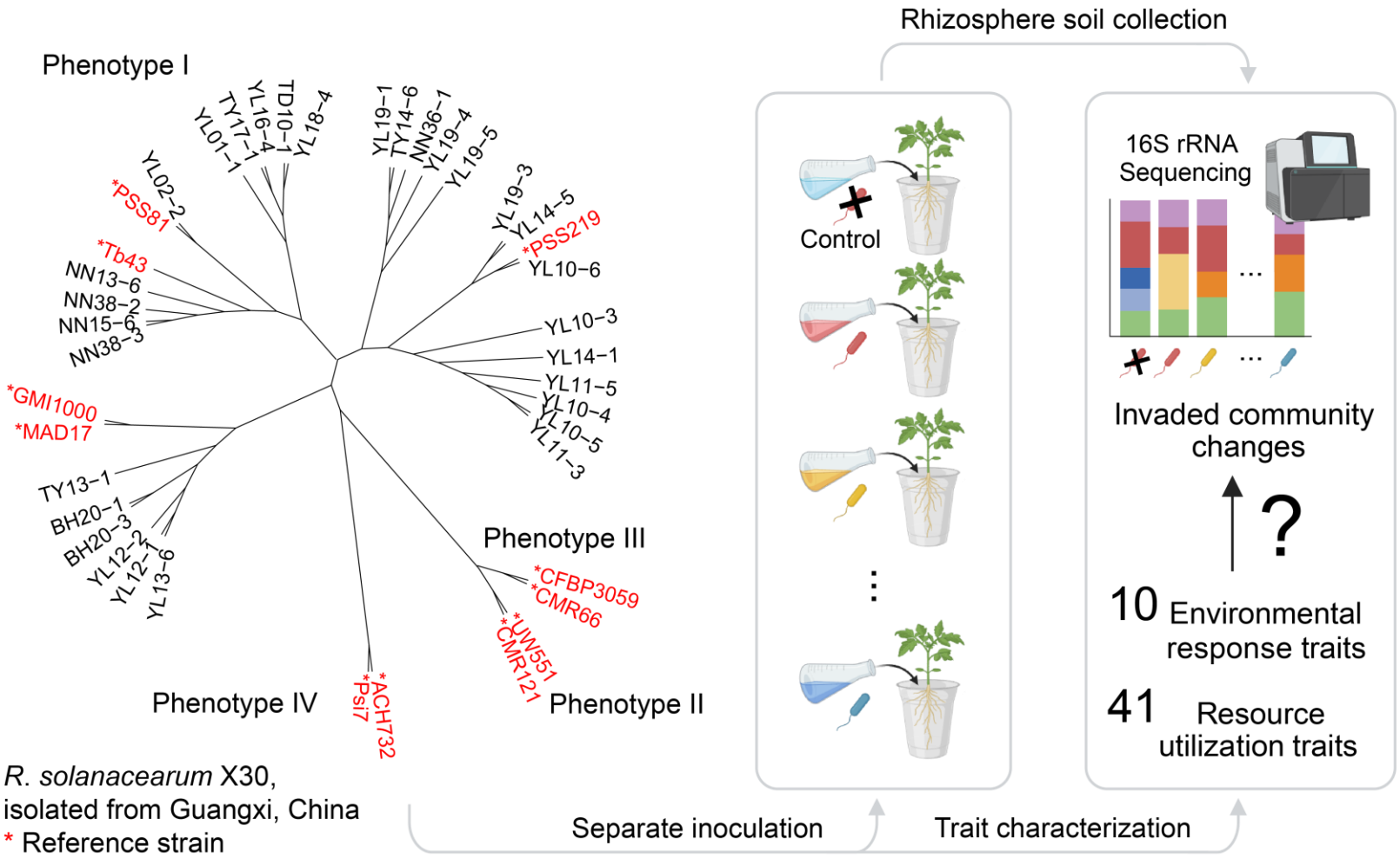


(C)



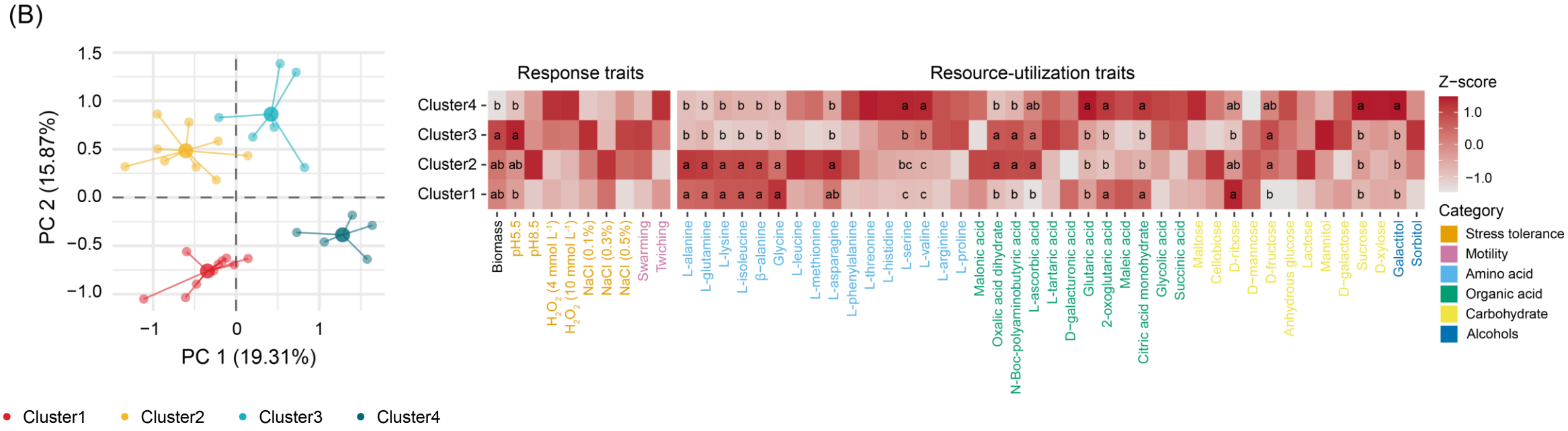
Results

2 | Thirty *Ralstonia solanacearum* strains were isolated from soil



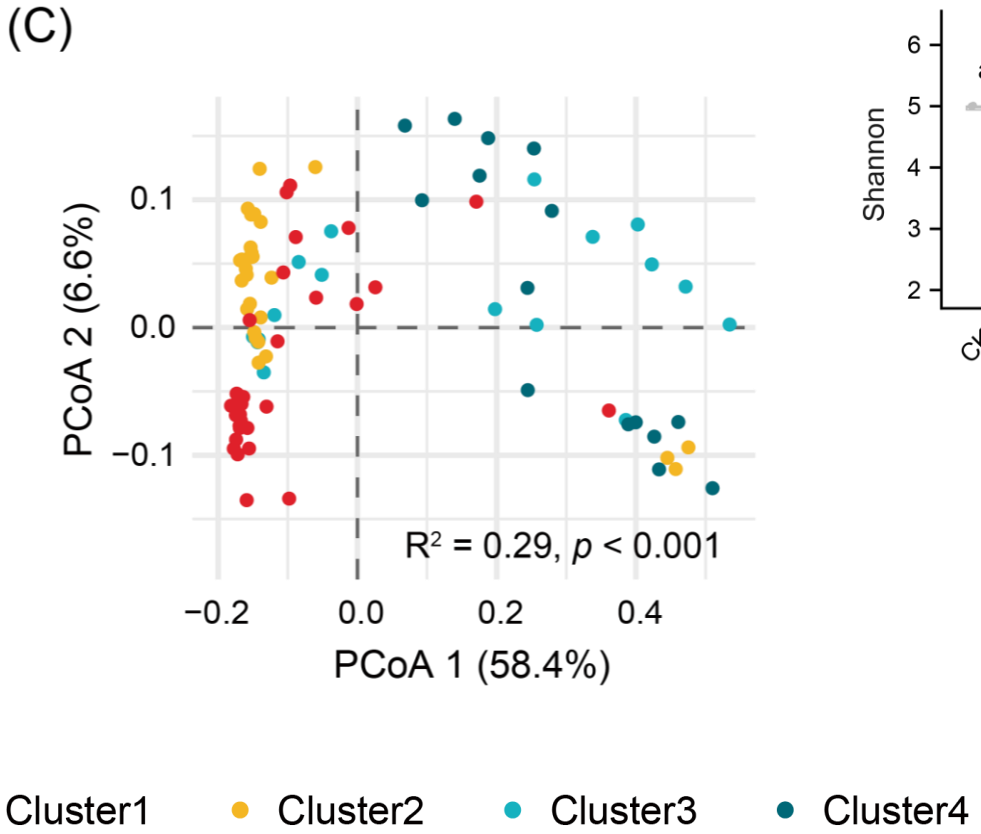
Results

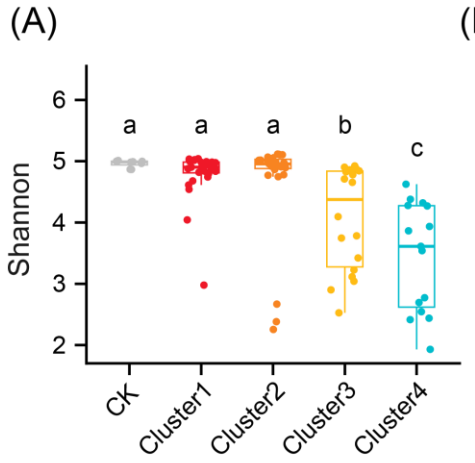
3 | Substantial trait variation exists among pathogen strains

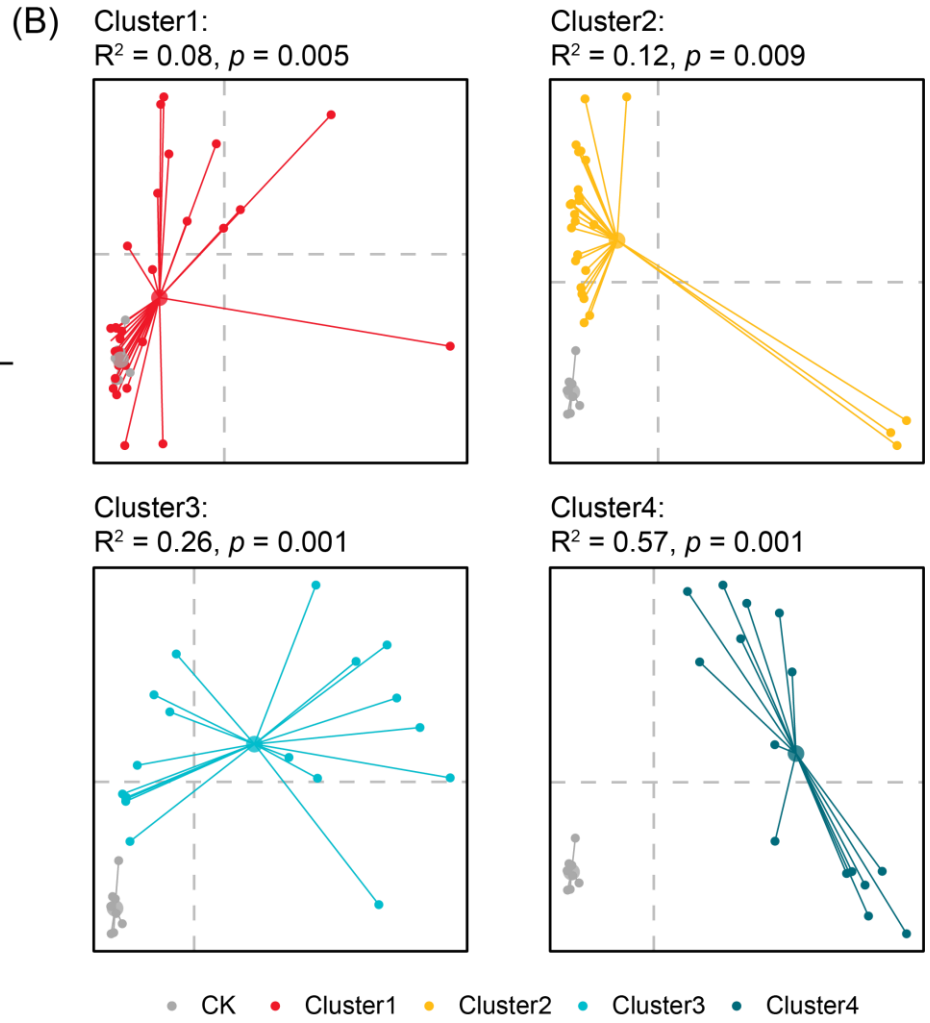


Results

4 | Resident microbial communities respond differently to different strains



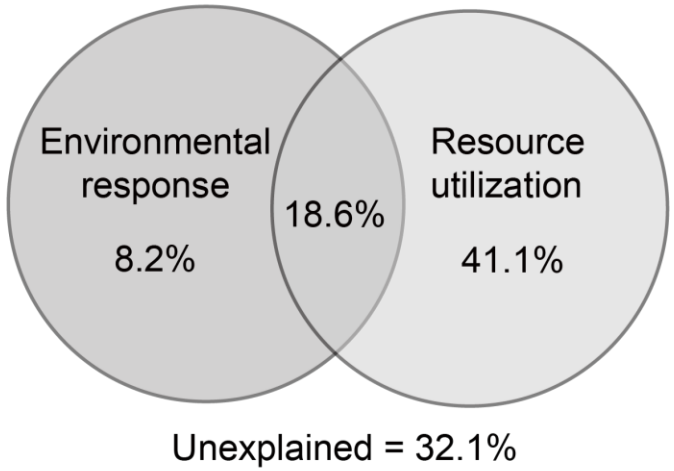




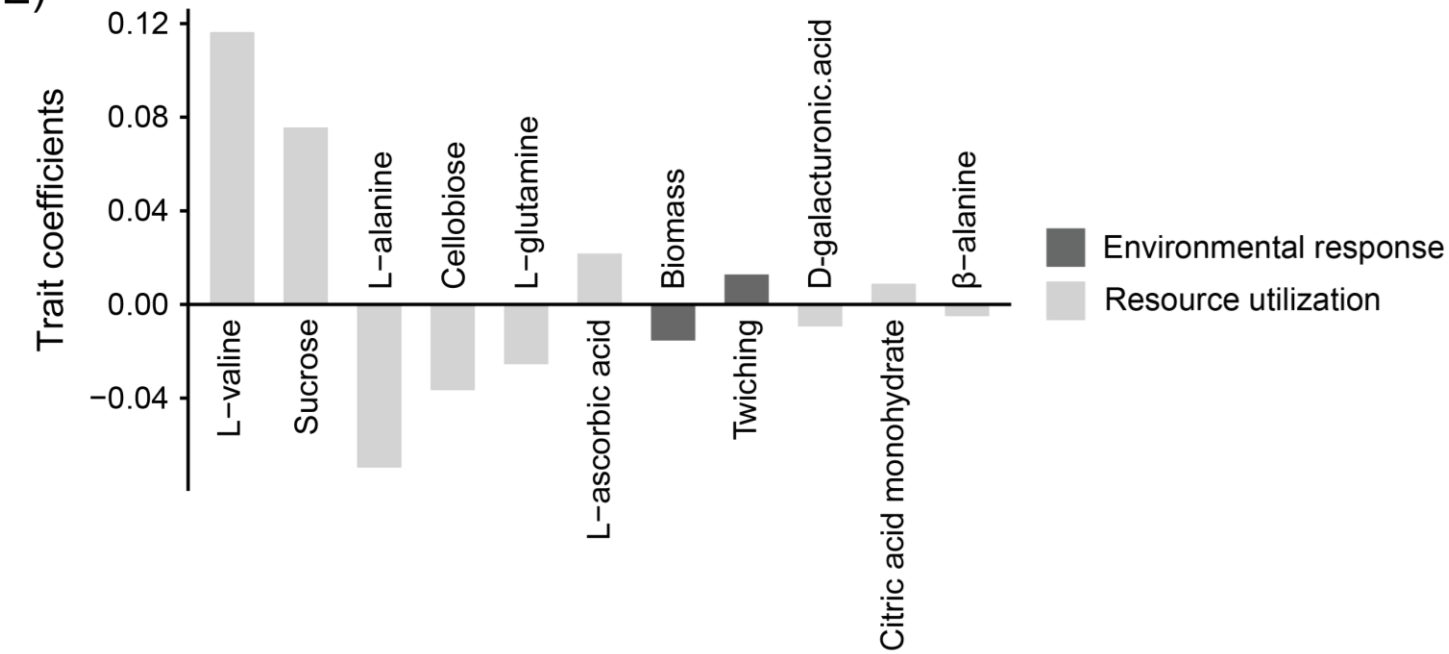
Results

5 | Pathogen resource-use traits are strongly associated with microbial community variation

(D)

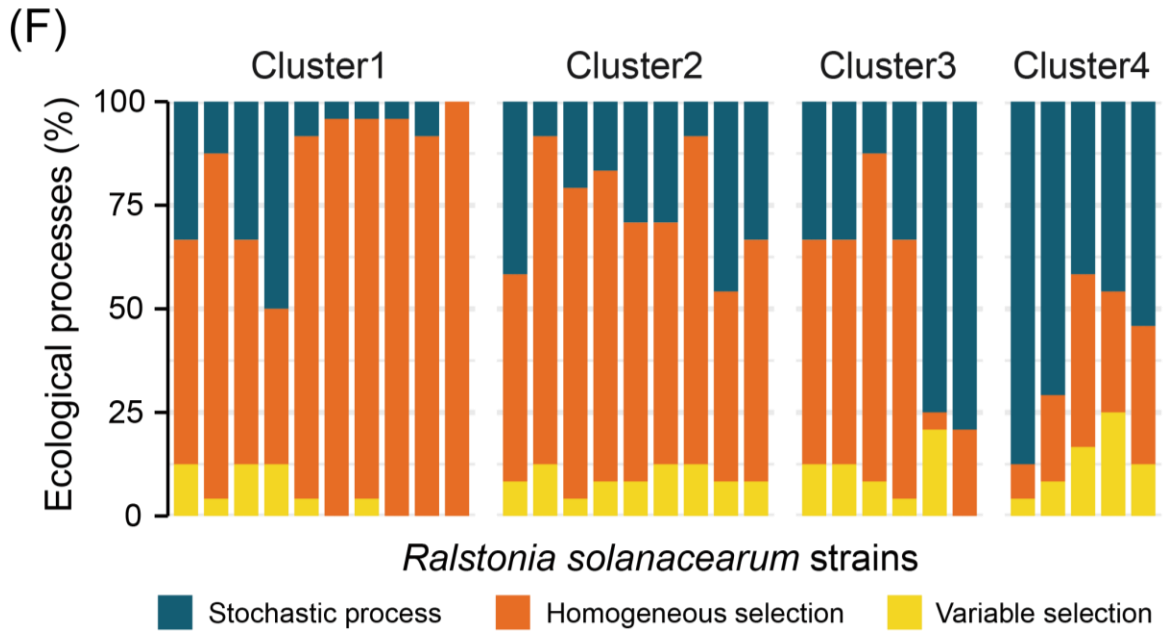


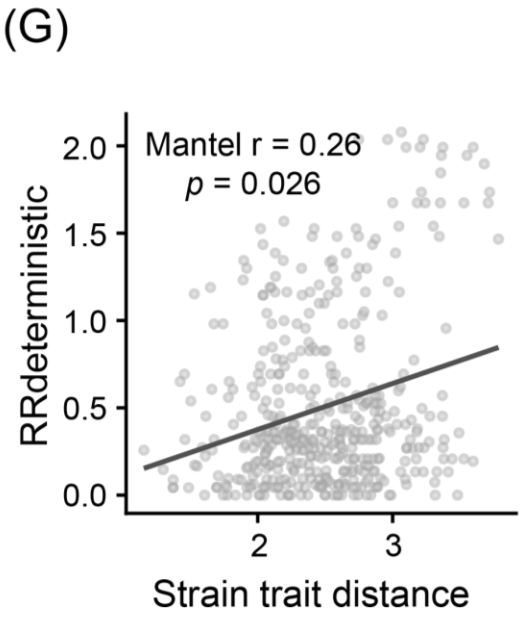
(E)

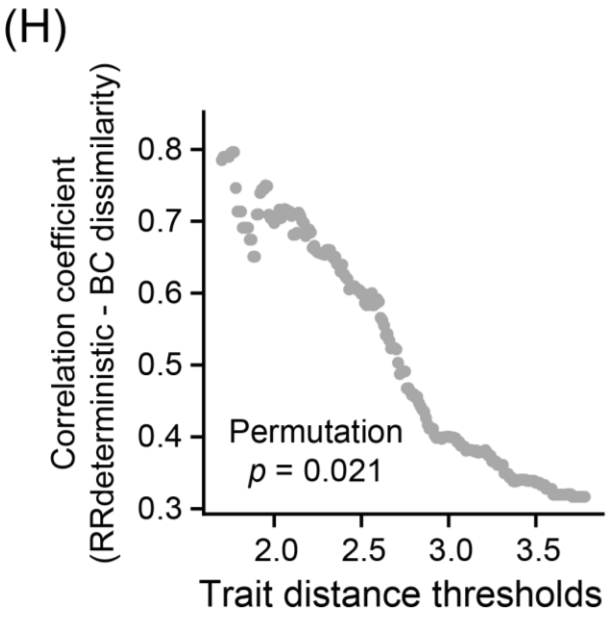


Results

6 | Pathogen trait variation is associated with microbial community assembly







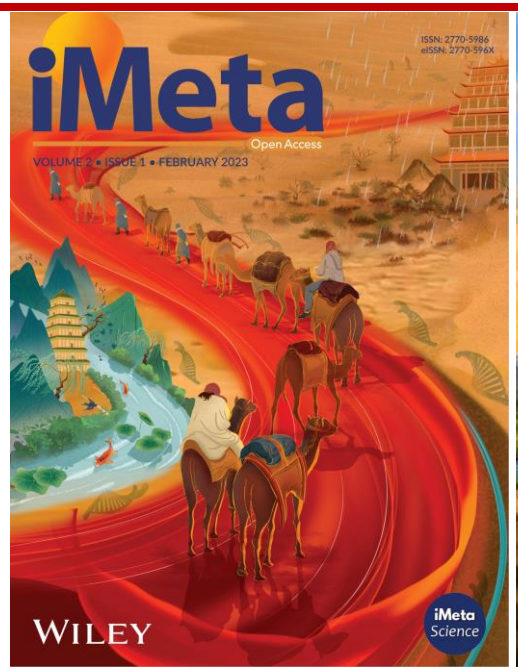
Summary

- Intraspecific trait variation in plant pathogens is associated with distinct responses of rhizosphere microbial communities.
- Pathogen resource-use traits are important predictors of rhizosphere microbial community variation, independently explaining 41.1% of the variation.
- When invading strains have similar functional traits, differences in community composition are more closely associated with differences in deterministic assembly processes. However, when strains differ substantially in their traits, community responses may be influenced by a wider range of ecological factors.

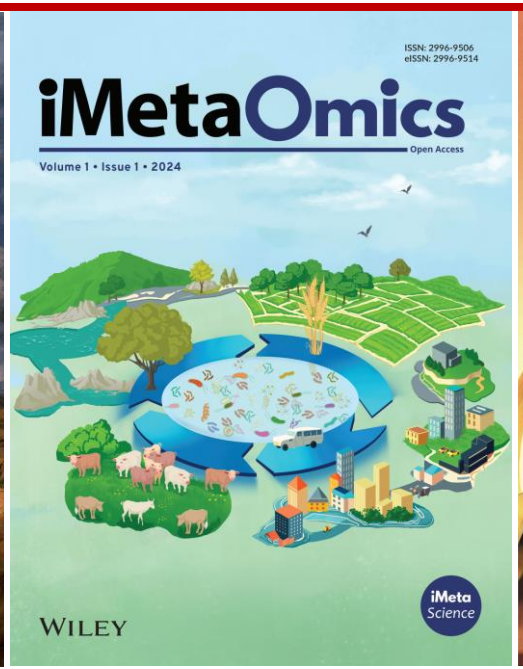
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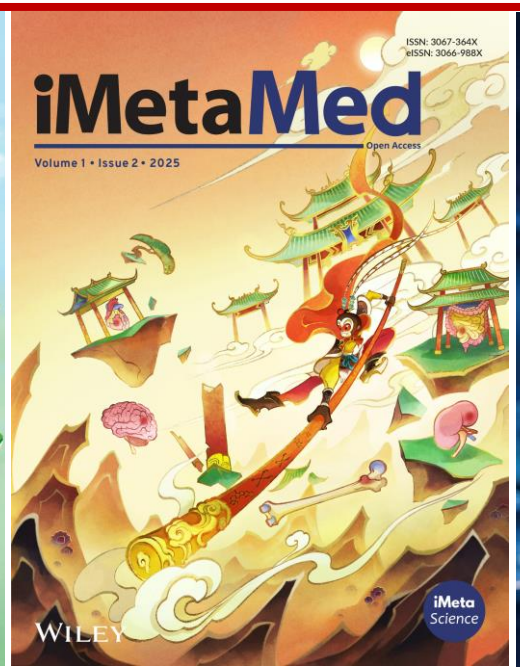
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