

From the sea to the field: the case study of the mycobiota associated to the marine sponge *Haliclona fulva* and its interest as biocontrol agent source for agriculture

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The mycobiota of *Haliclona fulva*: an important source of marine natural products?

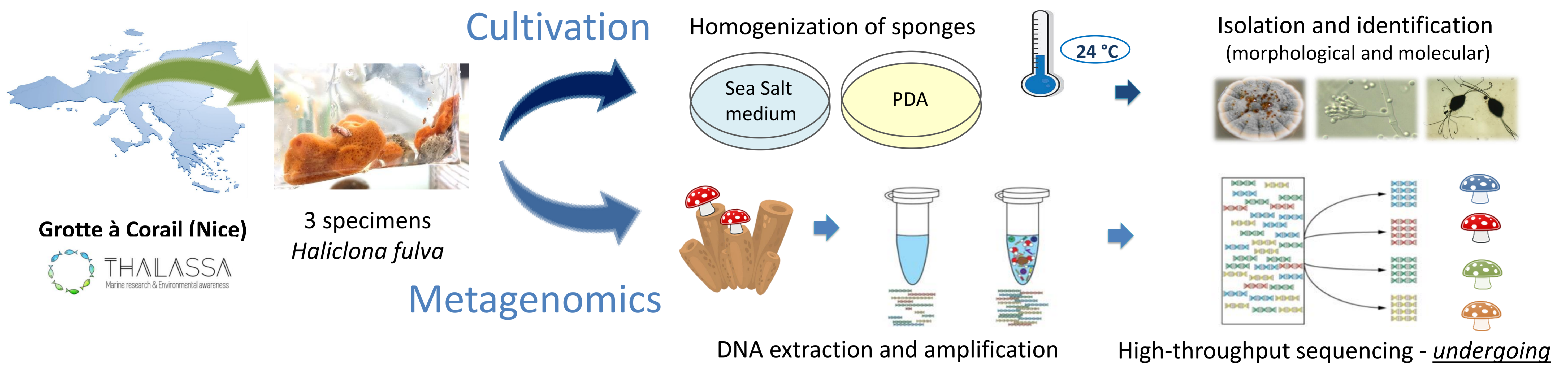
Oceans and seas represent a largely unexplored environment, especially at microorganisms level. Marine fungi are particularly interesting since they exhibit a high diversity and an ability to produce new secondary metabolites.

Natural strategies based on microorganisms (strains, compounds) have gained an increasing interest in plant protection. They are promising alternatives to some conventional agrochemicals that are banned due to their concern for health and environment.

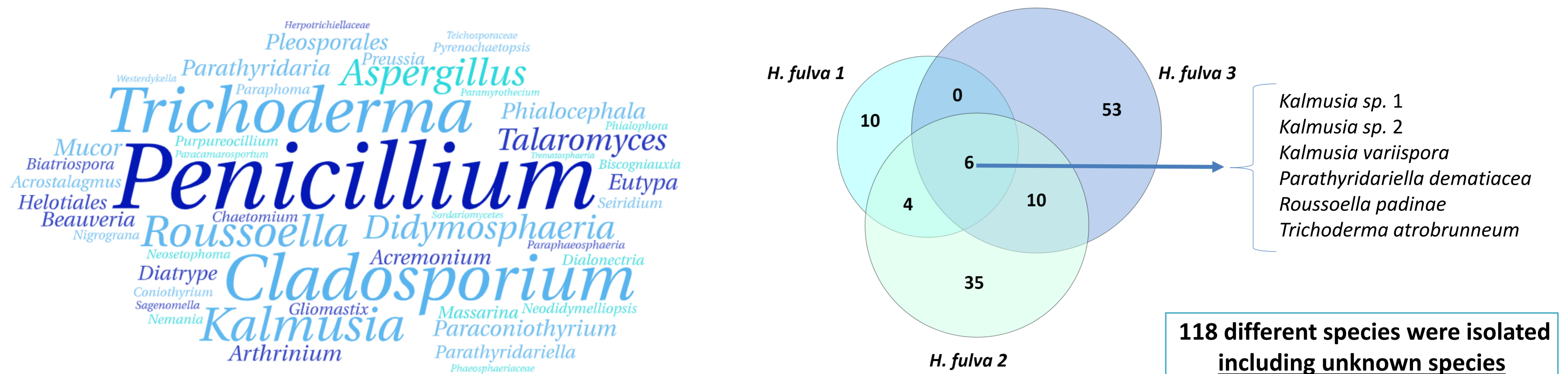
Goals

- Identify the fungal community associated with the sponge *Haliclona fulva* by cultural dependent and independent techniques.
- Isolated strains to inhibit the growth of plant pathogens of economical interest.
- Bio-guided purification of bioactive compounds.

Identification of fungal species

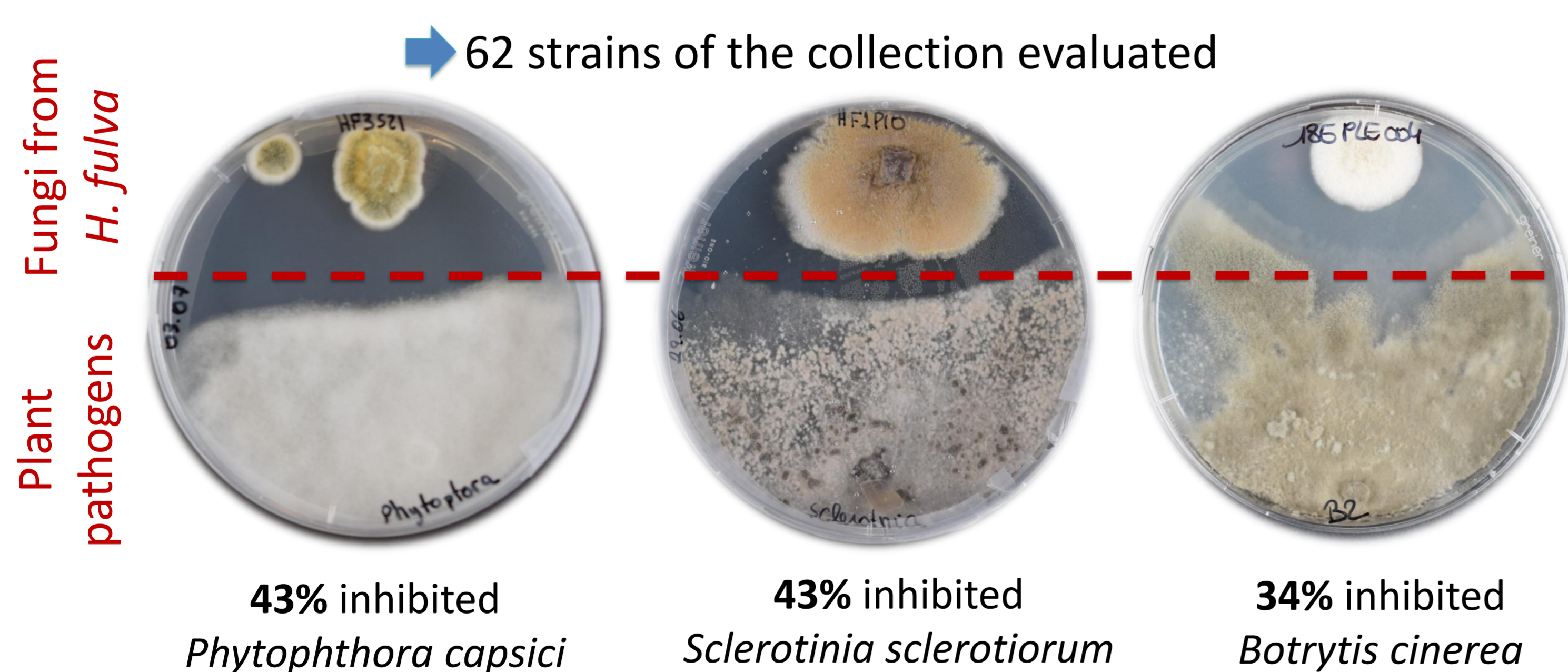


Biodiversity

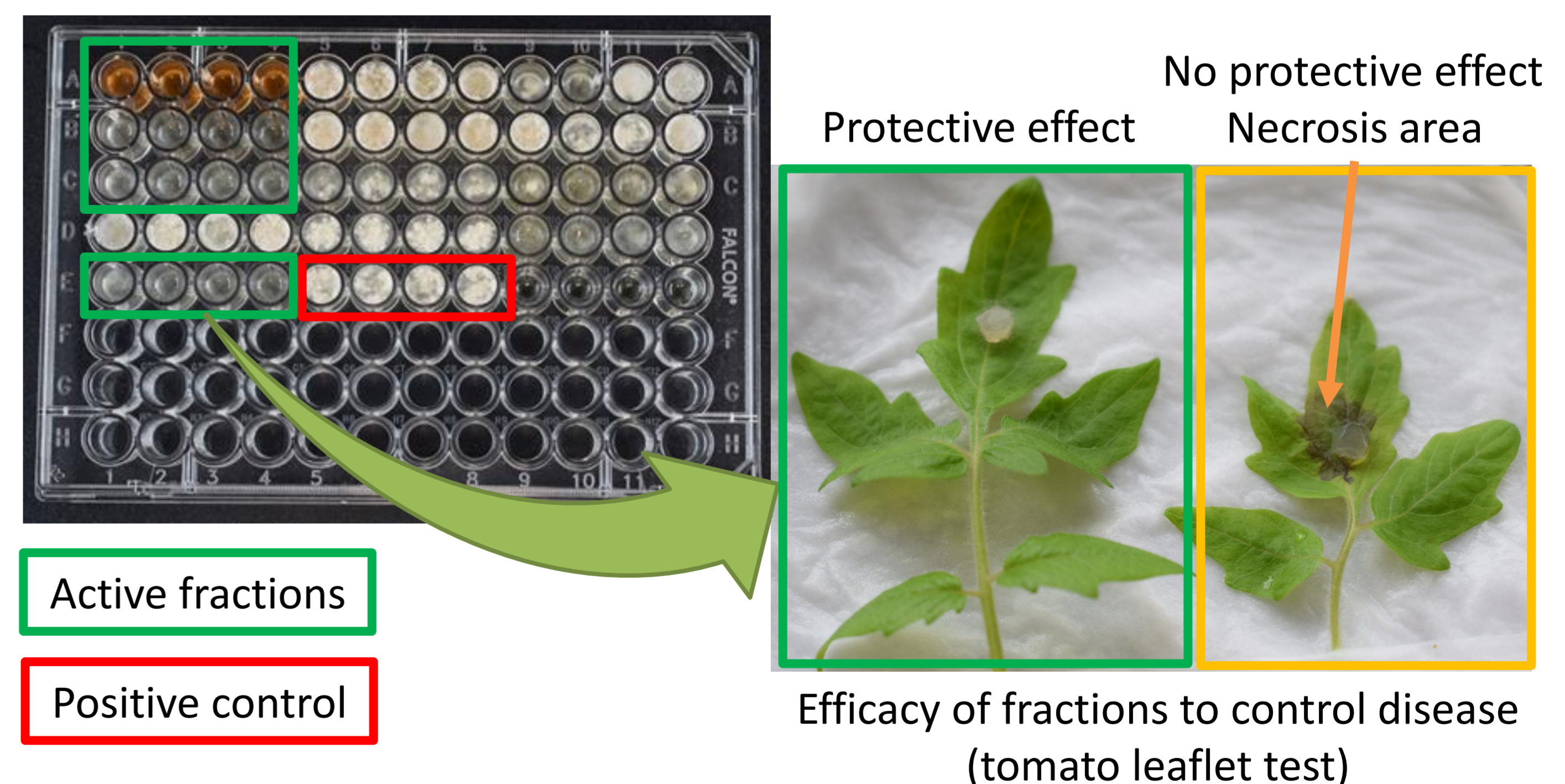


Promising activity against plant pathogens

Confrontation tests against the plant pathogens



Evaluation of the active fractions against the plant pathogens



Conclusion & next steps

- H. fulva* showed an interesting fungal diversity including new species (description in progress) and species exclusive of the marine environment.
- The use of two media guaranteed to isolate a higher number of strains, but no significant qualitative and quantitative differences were observed in the species isolated.
- The strains active against the plant pathogens will be further studied and the molecules responsible for the activity will be elucidated (HPLC analysis, LC/MS and NMR).
- The ongoing **metagenomic studies** will allow comparing, for the first time in a sponge, the discrepancy between culturable and unculturable mycobiota.