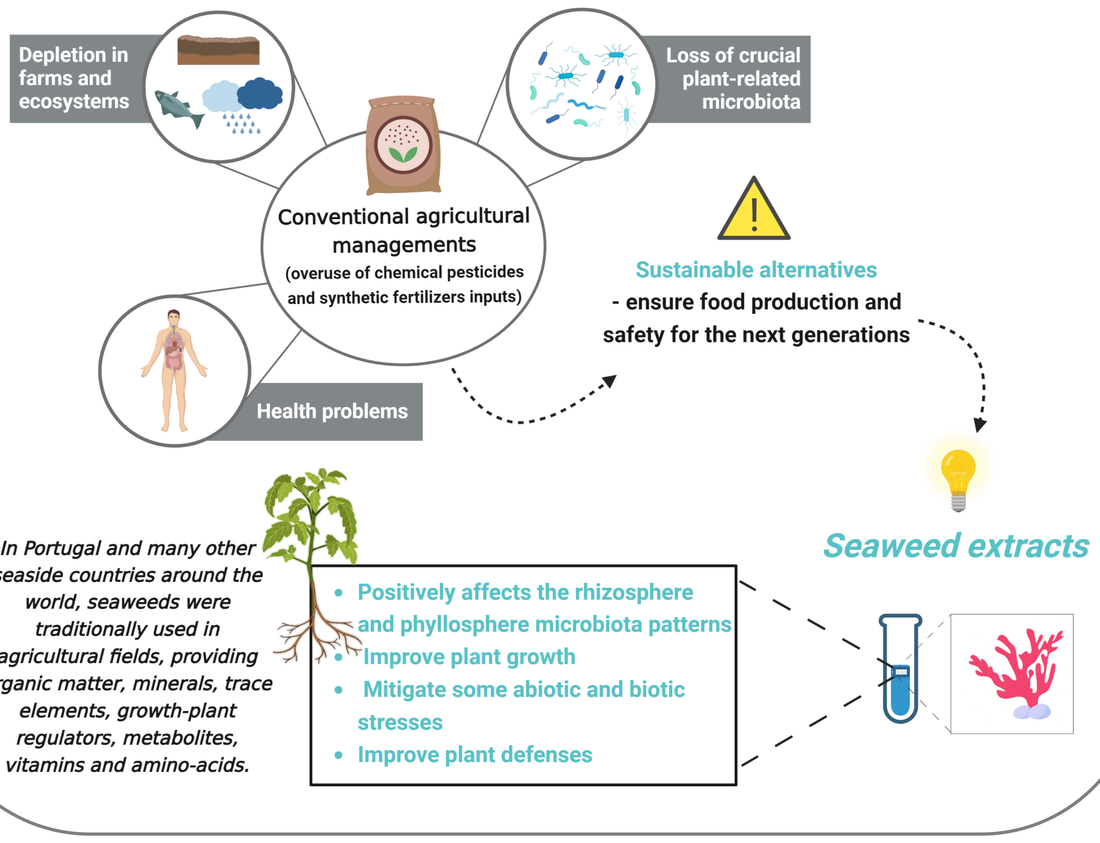
Evaluation of *Gracilaria gracilis* effects on tomato plants: pipelining the use of a new seaweed extract as biostimulant

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To give you some context…

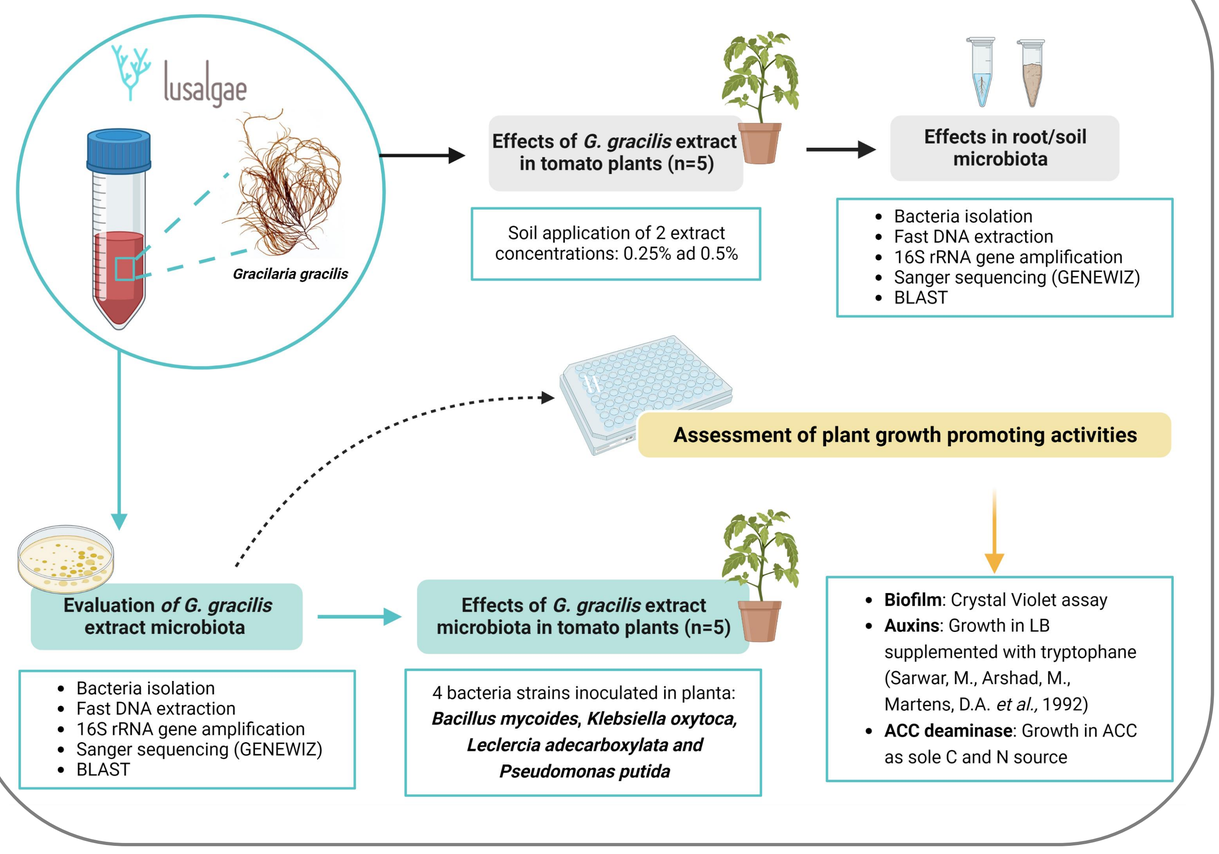


Objectives

Our project aims to develop a pipeline to assess putative biostimulant effects of a novel seaweed extract, produced from the red seaweed *Gracilaria gracilis*, on *Solanum lycopersicum* plants. Moreover, we decided to go further and characterize the effects on root/soil microbiota after treatments.

We also detected the presence of some interesting bacteria strains in *G. gracilis* extract, so we included complementary characterization test of these strains as bioinoculant.

What was the approach?

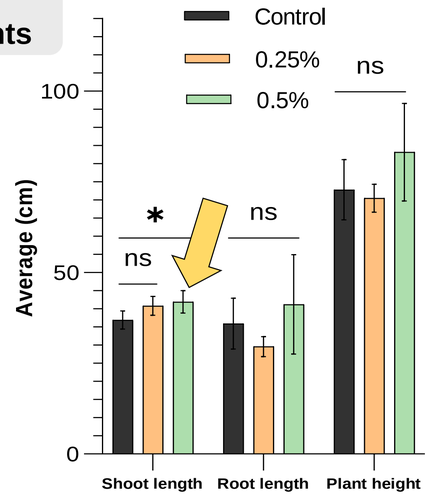


Results

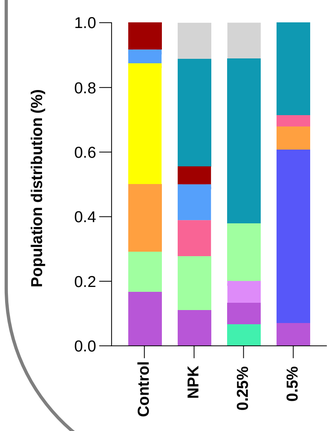
G. gracilis extract Effects in tomato plants



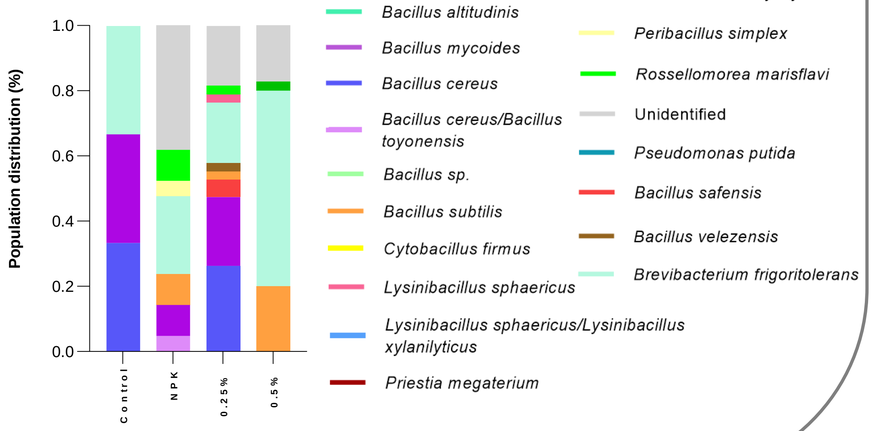
Representative plants



Soil microbiota profile

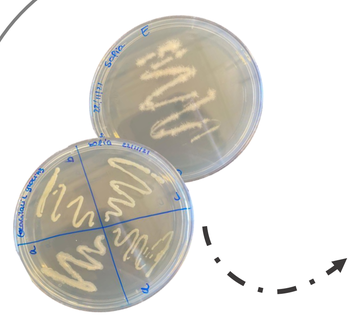


Root microbiota profile

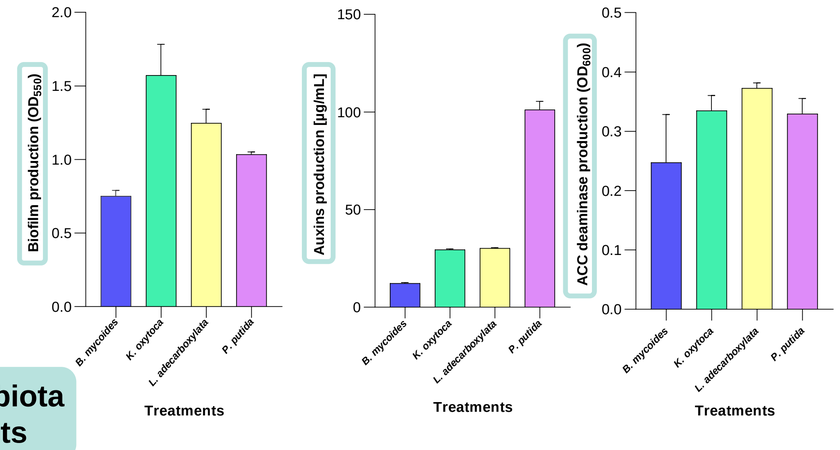


- *Bacillus altitudinis*
- *Bacillus mycoides*
- *Bacillus cereus*
- *Bacillus cereus/Bacillus toyonensis*
- *Bacillus sp.*
- *Bacillus subtilis*
- *Cytobacillus firmus*
- *Lysinibacillus sphaericus*
- *Lysinibacillus sphaericus/Lysinibacillus xylanilyticus*
- *Priestia megaterium*
- *Paenibacillus amylolyticus*
- *Peribacillus simplex*
- *Rossellomorea marisflavi*
- Unidentified
- *Pseudomonas putida*
- *Bacillus safensis*
- *Bacillus velezensis*
- *Brevibacterium frigoritolerans*

Results



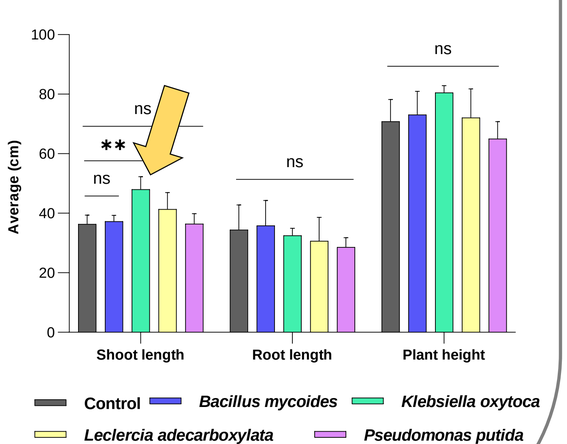
G. gracilis extract microbiota



G. gracilis extract microbiota Effects in tomato plants



Representative plants



Final remarks

- *G. gracilis* extract at 0.5% improved shoot length in tomato
- New bacteria were recruited by *G. gracilis* extract at 0.25% and 0.5%
- *G. gracilis* extract have its own microbiota
- Microbiota skills: biofilm, auxins and ACC deaminase production
- New bacteria were recruited by *G. gracilis* extract at 0.25% and 0.5%

Future directions

- Develop a well-established method to characterize seaweed extracts as a whole;
- Develop a suitable pipeline to evaluate seaweed extracts effects in planta;
- Gene expression and epigenetic studies to deepen the understanding of plant responses to seaweed extracts treatments.

Acknowlegments

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References

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