Developing salt-tolerant microbial inoculants to enhance Salicornia growth in IASIS field sites

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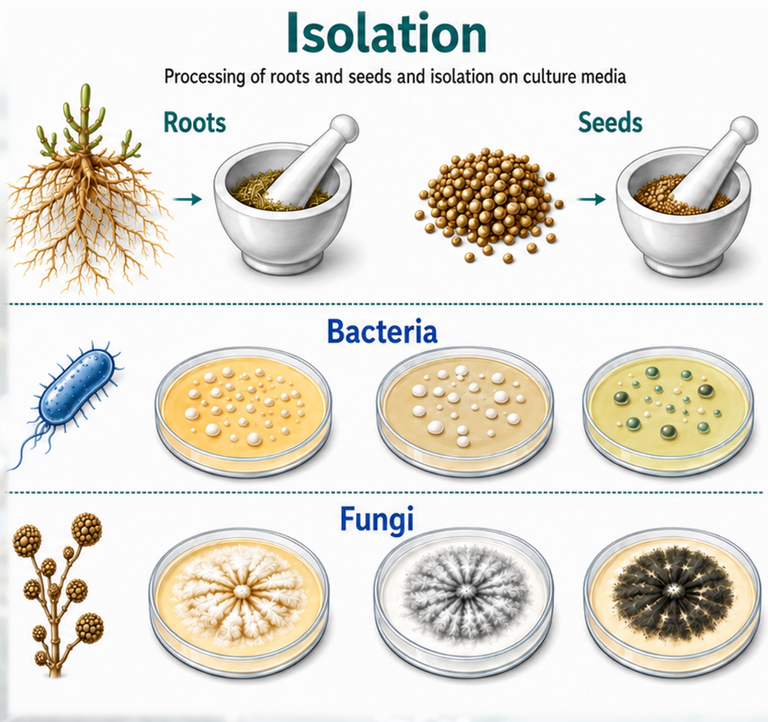
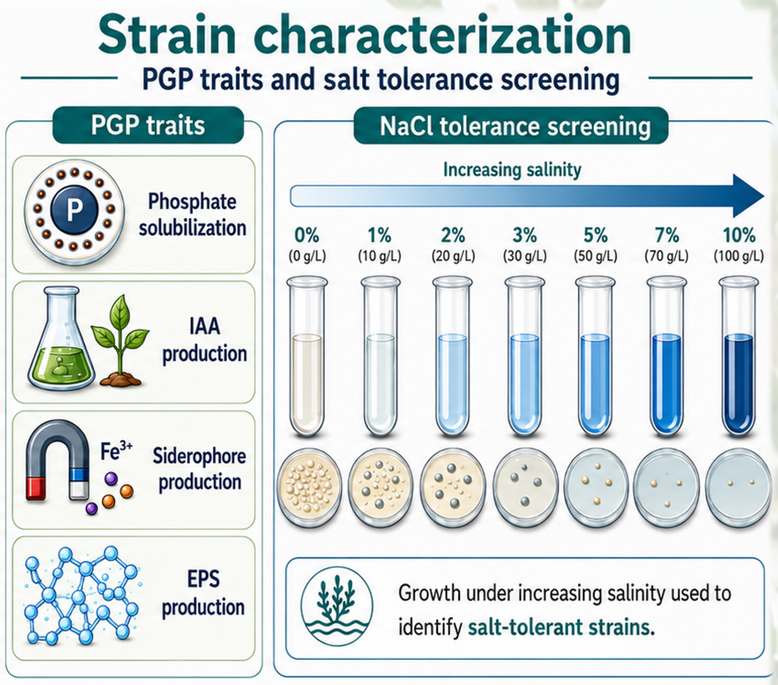
Background

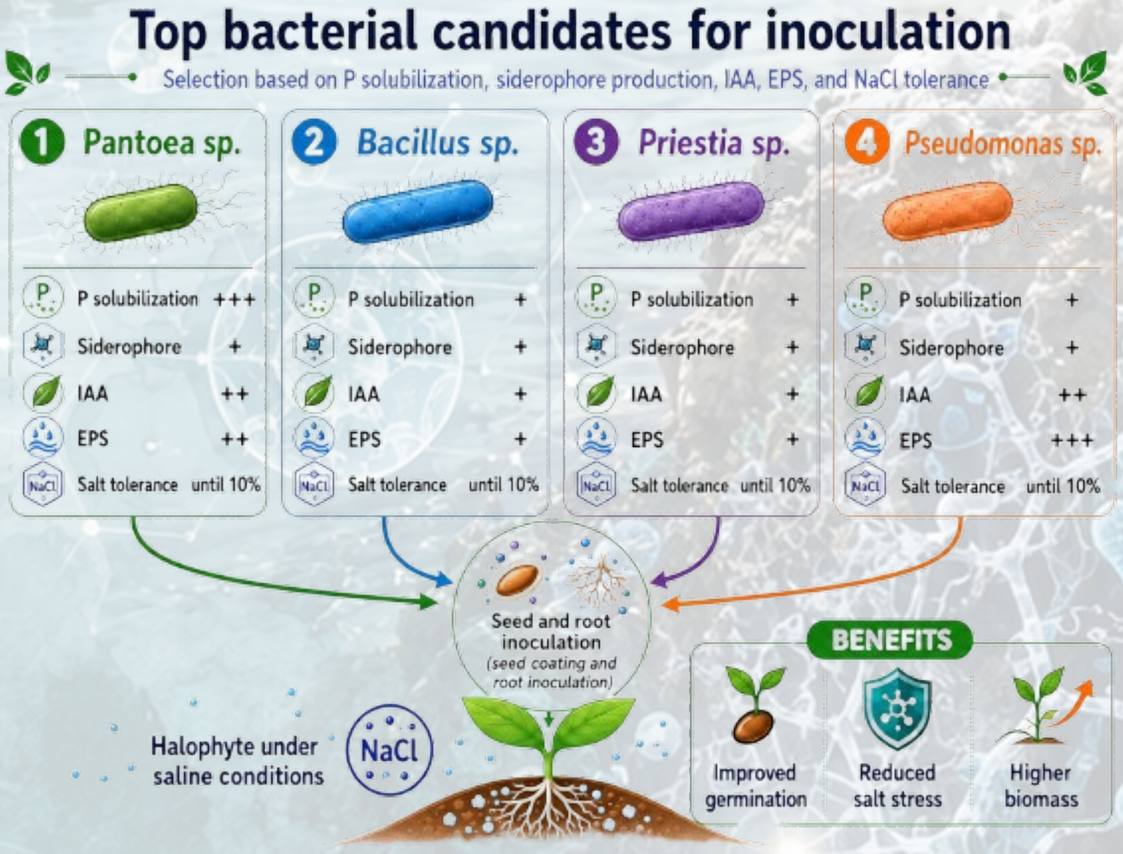
In the EU, ~6.7 million hectares are salt-affected and ~72 million hectares are sodic, constraining conventional agriculture. Salicornia spp. is a promising halophyte that thrives under high salinity and produces fibre-rich biomass supporting bio-based value chains (production of particleboards, Resins, Bioplastics, Biocomposites, etc.). Bacterial and/or fungal inoculation may improve the germination rate, which is currently relatively low (<25%), while reducing plant salt stress and increasing biomass production.

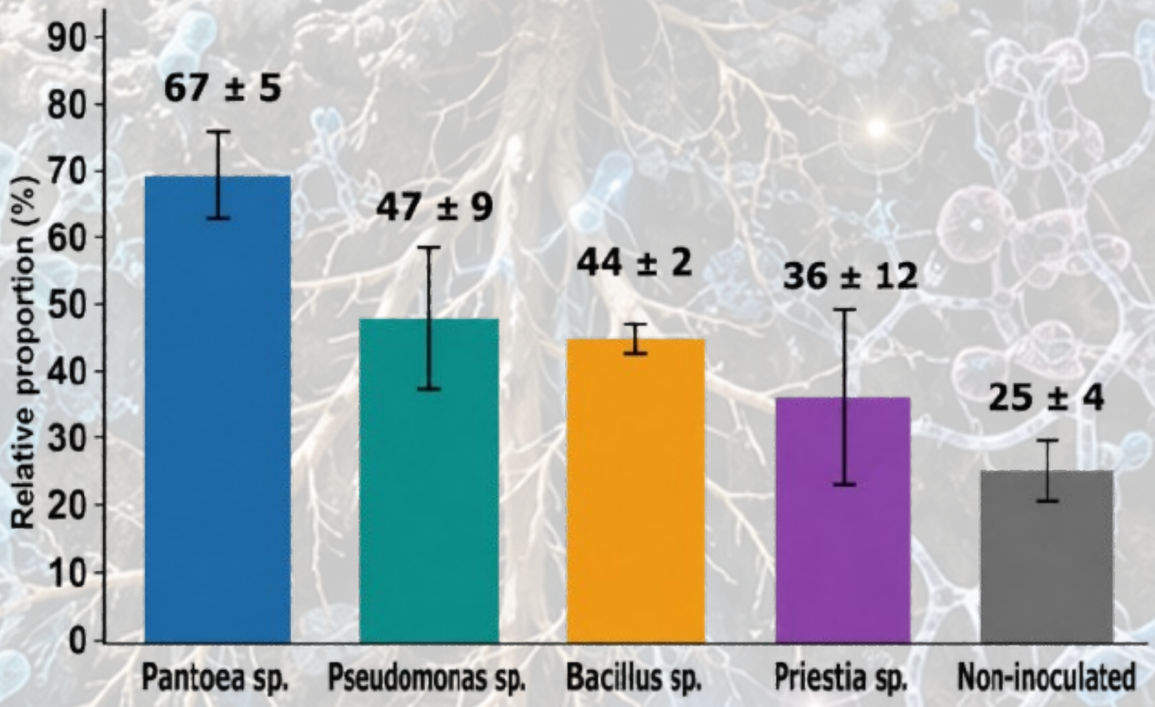
Material & Methods





Results





Conclusion

The results demonstrate that inoculation of *Salicornia* sp. seeds with selected bacterial strains increased the relative germination proportion compared with the non-inoculated control. This positive effect was particularly pronounced for strains affiliated with the genus *Pantoea*, suggesting that these bacteria may play a beneficial role in promoting early seed germination. To further enhance germination performance, the use of combined bacterial and fungal consortia is currently being investigated. The most promising inoculation strategies will subsequently be evaluated through seed-coating approaches, first under controlled pot conditions and then in field trials.