Biofertilizer based on *Aspergillus niger C* and *Acidithiobacillus thiooxidans* to enhance phosphorus and sulfur availability in soil

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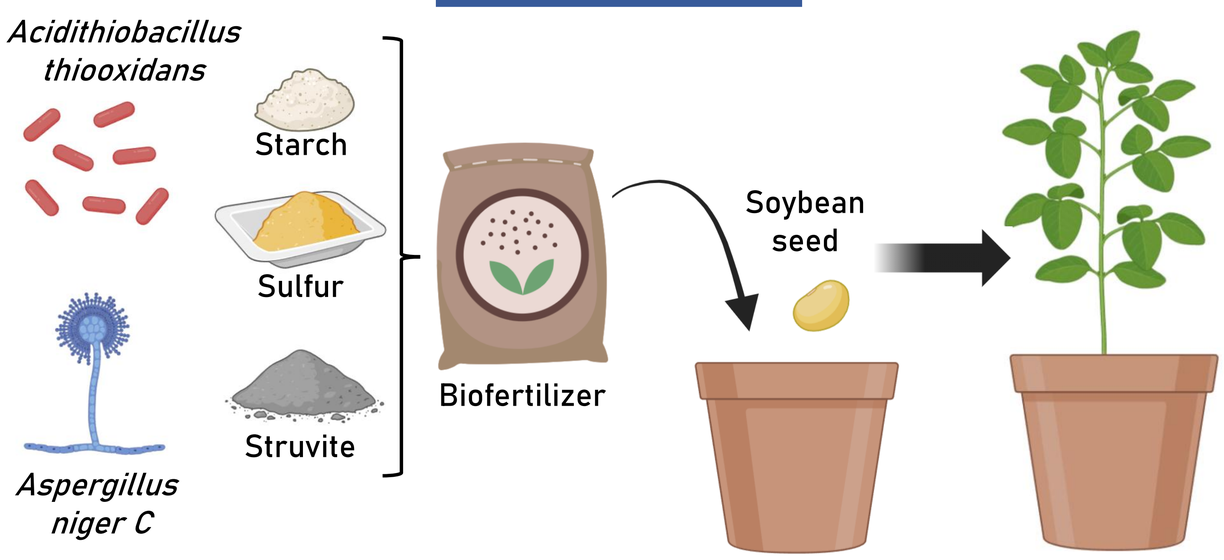
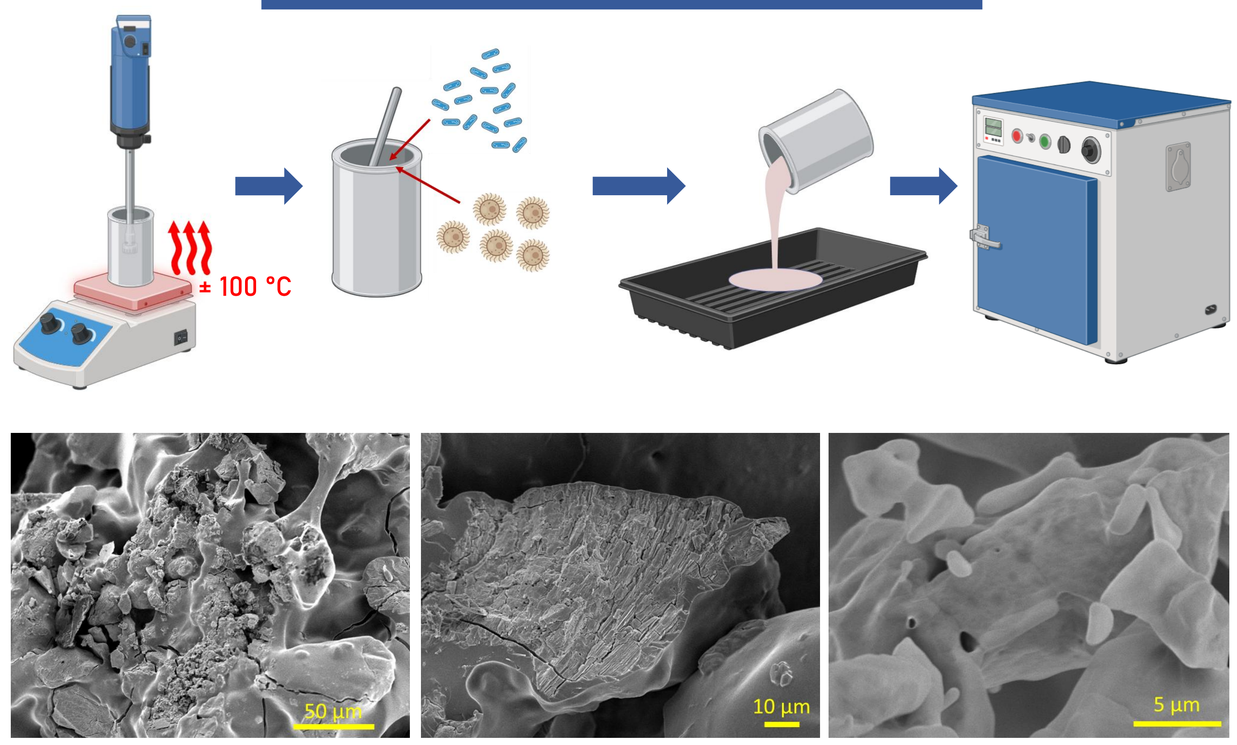
INTRODUCTION

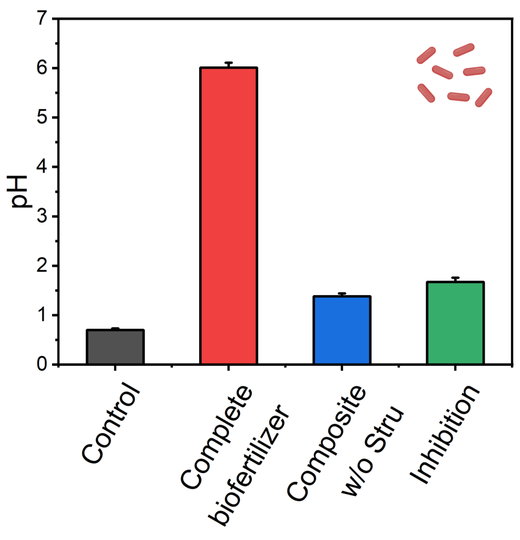


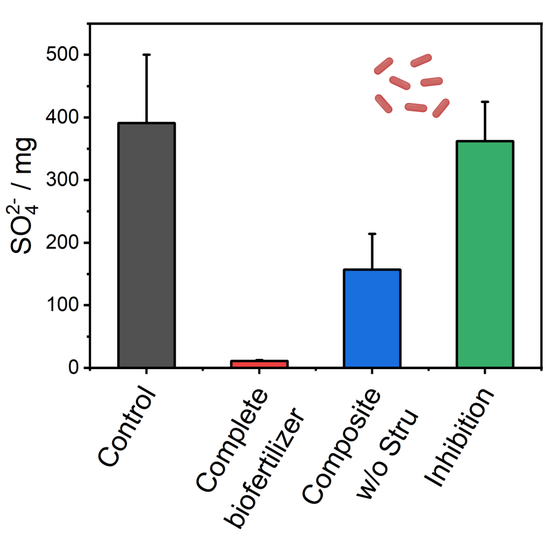
We designed a biofertilizer based on sulfur and struvite inoculated with *Acidithiobacillus thiooxidans* and *Aspergillus niger C* that increased the release of sulfate and phosphate to the soil through different mechanisms of oxidation.

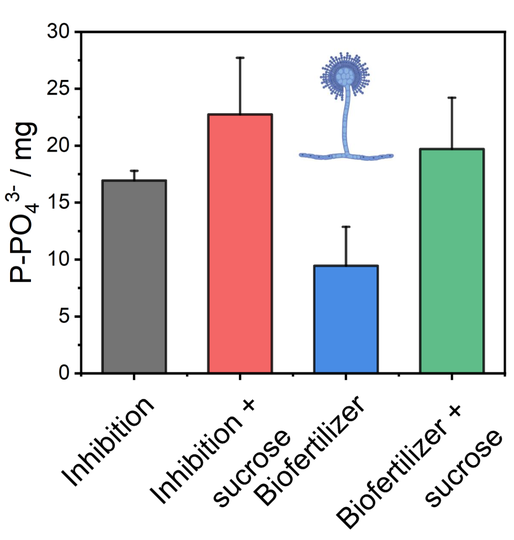
SYNTHESIS AND CHARACTERIZATION

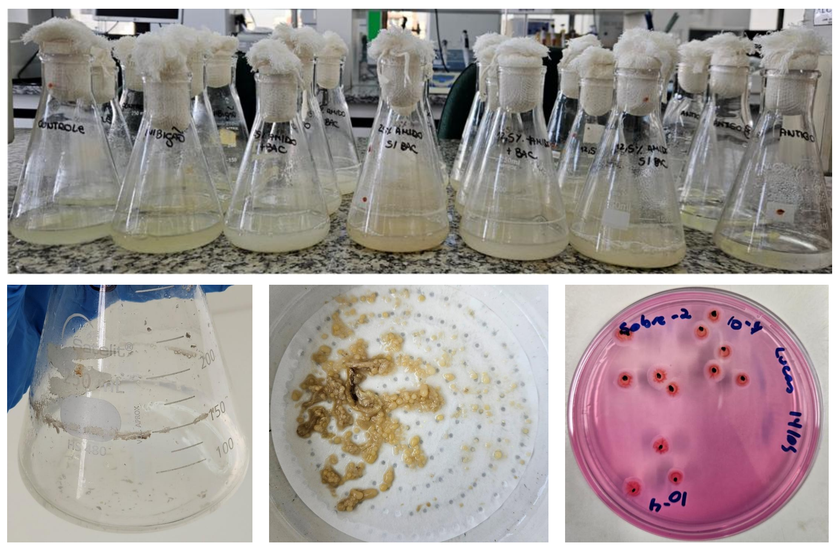


INHIBITION AND VIABILITY ASSAYS

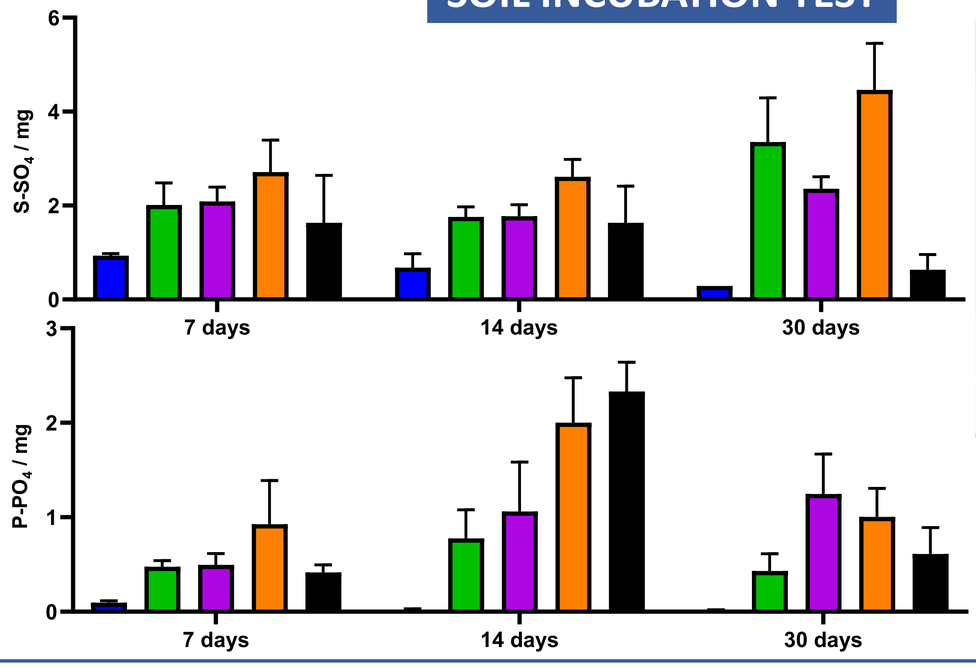




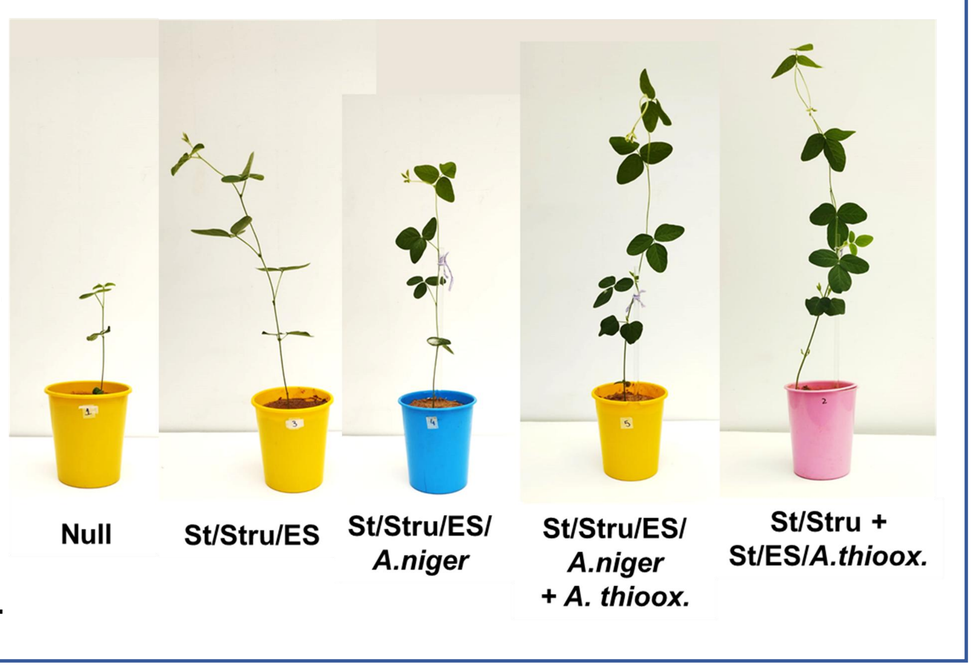




SOIL INCUBATION TEST



Null
St/Stru/ES
St/Stru/ES/*A. niger C*
St/Stru/ES/*A. niger C* + *A. thioox.*
St/Stru + St/ES/*A. thioox.*



CONCLUSION

In summary, we successfully developed biofertilizers containing *A. thiooxidans and A. niger C*. For the bacterial strain, it was necessary to separate the composite into two different granules, as the cells did not survive in direct contact with struvite. In contrast, no cytotoxic effects were observed for the fungal strain. Soil release assays demonstrated that both *A. thiooxidans and A. niger C* are capable of promoting phosphorus oxidation, with the best performance observed in the materials containing the bacterium.

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