

## **71 Phenotypic evaluation of the IDC profile of soybean plants after inoculation with plant growth-promoting bacteria.**

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Iron deficiency chlorosis (IDC) is a serious problem affecting legumes grown in calcareous soils. Apart from the obvious effects of IDC on plant yield and quality, climate change is intensifying the severity of this nutritional problem, leading to a need in the discovery of sustainable strategies to improve iron uptake by plants. The use of plant growth-promoting bacteria (PGPB) could be one of such strategies. However, before implementation, it is necessary to conduct a combination of extensive plant and PBGB phenotyping to identify the most suitable combination of PBGB for each specific cultivar. The first goal of this study was thus to phenotype a collection of PBGB available at CBQF for three tests related with iron nutrition: qualitative analysis of organic acid production, ability to reduce iron (III) and growth under different pH values, evaluated as percent inhibition. The second was to isolate and identify novel PBGB which are naturally associated with legumes, and expand the collection that can be used for these purposes. Lastly, soybean plants were subjected to IDC prone soil conditions and the two most promising bacterial strains (*Sphingobium fuliginis* and *Pseudomonas jessenii*), alone or in combination, were tested as IDC correctors. A series of plant phenotypic parameters related with IDC development were then evaluated, such as SPAD values, root iron reductase activity, plant dry weight and mineral content, showing the applicability of these bacterial strains as novel potential agents for IDC correction in the context of climate change.