P-880 Hormonal interplay between plant growth promoting bacteria and plants grown under saline stress.

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Reforestation of mangroves and the productivity of commercial crops is severely limited by soil salinization. Some works have shown that bacterial inoculation can mitigate the deleterious effects of saline stress in plants. However, the role of plant growth regulators in this response is not clear. The objective of this work was to determine if the synthesis of plant growth regulators by plant growth promoting bacteria, PGPB, is induced by root exudates and if inoculation of plants with PGPB changes the composition of plant growth regulators exuded by plants grown under saline stress. Chili plants (*Capsicum annuum*) and mangrove seedlings (*Avicennia germinans*) were grown under hydroponic conditions at different concentrations of NaCl and inoculated separately with *Enterobacter hormaechei*, isolated from the roots of *A. germinans*, *Azospirillum brasilense* Cd, or with *A. brasilense* Cd/pRKTACC transformed with the ACC deaminase gene. Root exudates were collected, and indoleacetic acid, IAA, indolebutyric acid, IBA, abscissic acid, ABA, and gibberellins AG3 and AG4 analyzed by HPLC. Addition of root exudates to bacterial cultures induced their synthesis of IAA and AG4 irrespective of the concentration of NaCl employed. No IAA was detected in root exudates of non-inoculated chili plants in contrast to inoculated plants where 0.84-0.50 ìg/mL of IAA, and 0.36 -1.38 ìg/mL of AG4 were found. Similarly, no plant growth regulators were found in root exudates of non-inoculated plantlets of *A. germinans*, in contrast to inoculated plants, which registered both IAA (0.52 ìg/mL) and AG3 and AG4. Interestingly, non-inoculated chili plants grown under saline stress exuded significantly more ABA (0.97 µg/mL) than inoculated plants. Results show that when the plant and the bacteria interact they create a cocktail of plant growth regulators that results from interaction with the plant, which is different from that of the bacteria alone. These modifications may play an important role in the mitigation of plant saline stress.

P-678 Valorisation of legume nodulating bacteria diversity for degraded arid and saline Algerian land restoration

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In Algeria soils available for agriculture are limited by salinity and drought. In this country there is a need for plant production improvement to face the increasing demand for human food and fodder. The global strategy for saline and degraded areas restoration includes the use of plant species developing nitrogen-fixing symbioses well adapted to these constraints, especially legumes. In this study plant and soil samples originating from arid and saline regions were collected all around the country. 72 bacterial nodule isolates were obtained and characterised phenotypically and genotypically. Their salinity tolerance was tested on YEM medium and 23 of them tolerate 800mM NaCl. The growth kinetics of the most tolerant strains was determined in M9 medium added with either 600mM or 800mM NaCl. All strains were tested for nodulation and nitrogen fixation with their host plant in standard tube conditions. After 16SrDNA sequencing, isolates were affiliated to *Sinorhizobium*, *Rhizobium*, *Agrobacterium*, *Phyllobacterium* and *Bradyrhizobium*. Some of them, forming a separate group possibly representing a new species in *Rhizobium* were further characterised by Multi Locus Sequence Analysis (MLSA) of five housekeeping genes and by auxanographic tests.

Three S. medicae and two *S. meliloti* strains were selected for their efficiency and tolerance to NaCl in vitro and further tested as inoculants for the growth of *Medicago ciliaris* and *M. polymorpha*, the two dominant forage legume in arid and saline regions of Algeria. The effectivity of strains was estimated by measuring ARA and plant aerial part dry weights with statistical treatments of data. Tests were performed both in a greenhouse and in open field located in a semi-arid region, South-Western part of Algeria.