



Bacterial Inoculants for Creating Salt Tolerant Crop Plants

BYU #2019-022

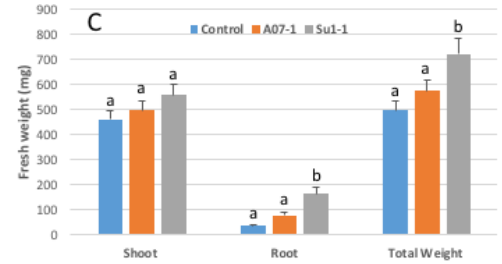
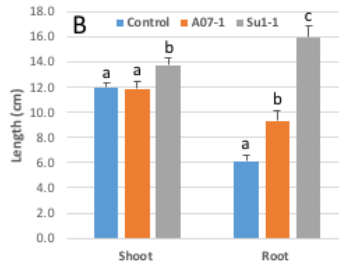
DESCRIPTION

Researchers at BYU have identified and characterized plant growth promotion activity of two isolates (*Halomonas* and *Bacillus*).

Using either of these isolates to inoculate alfalfa resulted in significant enhancement of plant growth in the presence of salt.

PROBLEM SOLVED

Soil salinity is becoming a common challenge in many agricultural areas due to drought combined with poor irrigation practices. Most crop plants are sensitive to salt, which leads to reductions in production. With the increasing food demand and degradation of agricultural land, the development of crop plants that are able to adapt and grow *sustainably* under changing environmental stresses is of urgent importance. The results of the ongoing research undertaken at BYU have a significant impact on efforts to identify bacteria that stimulate growth of plant species under a variety of stress conditions. Although the initial research was focused on alfalfa, similar stimulation of plant growth in salty conditions has been observed with rice, Bermuda grass, and Kentucky bluegrass.



Alfalfa growth stimulation by halophilic bacteria in salty soil. A. The photo shows 3 representative plants from each treatment. B. Significant root length increase induced by the *Halomonas* (A07-1) and *Bacillus* (Su1-1) isolates. C. Plant growth performance enhanced by halophilic bacteria. Each treatment had 30 plants, and plants were watered with 1% NaCl solution starting one week after bacterial inoculation and grown in the greenhouse.

KEY ADVANTAGES

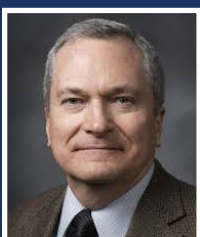
- » Enhanced growth of crop plants in salty soil
- » Reduced plant uptake of sodium ions from the soil
- » Increased photosynthesis

Offer:
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APPLICATIONS

This invention would be of particular interest to agricultural companies, agricultural research institutions and affiliated governmental agencies.

IP Status:
Patent Pending



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