A Study of Pseudomonas putida as a Viable Biofertilizer for Crops in Soils with High Salinity

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The purpose of this project was to determine if Pseudomonas putida can be used as a biofertilizer in the production of corn and wheat in salty soil environments. Corn and wheat were grown in two different soil samples and a control of potting soil. The soil samples were tested for salinity levels. The corn and wheat were treated with doses of Pseudomonas putida. The control consisted of corn and wheat not treated with Pseudomonas putida. This research benefits mankind by determining if Pseudomonas putida is a viable biofertilizer to use in promoting crop growth, especially in saline soil types. It was hypothesized that the plants treated with Pseudomonas putida would grow more than the plants not treated. Research began by collecting samples of soil from farm ground known to contain high sodium levels. The samples were sent to a testing laboratory for analysis. Ten plants each of wheat and corn were planted in each soil sample and potting soil. Half of the plants in each test group were treated with 1mL of Pseudomonas putida a total of three times. After approximately four weeks of growth, plant height, root length, biomass, and water content were measured. The researcher found that the corn treated with Pseudomonas putida was on average 1.7 cm taller with roots 3.4 cm longer in potting soil. The corn also contained more water in all treated groups. The data showed that Pseudomonas putida was effective in assisting the corn in growth; however, it was ineffective in the wheat.

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