Acquired Symbiosis of Nitrogen Fixing Gluconacetobacter diazotrophicus in Cereal Grains

Singh, Monica

The bacterium Gluconacetobacter diazotrophicus, isolated from the roots of sugarcanes, is a bacterium that carries the nitrogen fixing capabilities for sugarcanes, and has shown some promise in its ability to fix nitrogen for other species. Successfully creating a symbiotic relationship between this bacterium and cereal grains was tested to determine whether the nitrogen fixing capabilities it carries for the sugarcanes can also be carried on to other non-legumous plants. Bacterial trials were created where the cereal grain seeds were coated with a broth containing the bacterium G. diazotrophicus, and control trials were created where no treatment of bacterium was given to the cereal grains. The plants were grown for two weeks and then the plants growth, percent germination, and soil nitrogen levels were measured. It was found from this experiment that the implementation of the bacterium significantly increased the soil nitrogen levels for barley and rye seeds.

Awards Won: