

# The effect of concentration *Bradyrhizobium japonicum* on the growth and nodule formation of *Glycine max*

## Abstract

Concentration of *Rhizobium* has been shown to affect the biomass of associated legumes. This experiment, through the inoculation of *Glycine max* by progressive concentrations of *Bradyrhizobium japonicum*, investigated the impact of *Rhizobium* concentration on growth and nodule formation. Four inoculum levels in 10% gradations from 100% to 0.1% were applied to six pots of four seeds each per inoculum level. Six replicates of a control receiving only de-ionized water as an inoculum were also grown. During the run of the experiment, height of the seedlings was measured once a week and observations were made as to the relative color of the seedlings of various treatments. At the end of the experiment, the height of each plant was measured again, the wet mass was taken of the shoots and roots of the plants in each pot, and roots were checked for nodule formation. Due to time limitations on this experiment, with a run time of only five weeks, no significant data about height, color or mass differences could be collected, and no nodules were present. This is probably a result of the fact that the seedlings were still being supplied with nutrients by their cotyledon leaves. Consequently, there existed no environmental difference between experimental replicates, causing no differential growth based on *Rhizobium* concentration, or necessitating nodule formation.