

Public Abstract

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Graduation Term:FS 2012

Department:Plant, Insect and Microbial Sciences

Degree:PhD

Title:PHOSPHOPROTEIN ANALYSIS OF SOYBEAN ROOT HAIRS IN RESPONSE TO
BRADYRHIZOBIUM JAPONICUM INOCULATION

The interaction between soybean (*Glycine max*) and the bacterium *Bradyrhizobium japonicum* (USDA 110) leads to the establishment of a nitrogen fixing symbiosis. This symbiosis results in the formation of nodule in which the bacteria reduce atmospheric nitrogen to ammonia which constitutes a source of nitrogen that can be used by the plant. Specificity in the symbiotic interaction between the soybean root hair and *B. japonicum* is determined very early during the initial stages of host-symbiont recognition. In order to understand these events in greater detail, we sought to characterize the soybean root hair phosphoproteins in response to *B. japonicum* inoculation using mass spectrometry analysis approach. The results of this research reveal unique features of the soybean root hair phosphoproteome, suggesting a complex network of kinase-substrate and phosphatase-substrate interactions in response to rhizobial inoculation.