

Discussion

The absence of any *B. japonicum*-induced root nodules on any of the treatment groups was probably related to the fact that all of the soybean plants still had their cotyledons. While the plants are drawing nutrients from these rich sources, there is no need for the plant to form a symbiosis with rhizobium. In fact, it would be to the plant's disadvantage to allow infection by rhizobium. The bacteria would be taking precious carbon from the plants that should be used for growth, without providing the plant anything it needed in return. The rhizobium-soybean relationship would become a parasite-prey relationship instead of a mutualism. To prevent this, while the plant is not in need of nitrogen, it is likely that it does not secrete the compounds that induce transcription of the rhizobium nod factors, thereby inhibiting nodule formation. Eventually, the cotyledons would have been used up and the plant could have benefited from a symbiosis with rhizobium. Premature removal of the cotyledons may have induced this response by removing the seedlings' nitrogen source, but we are unaware of what other possibly detrimental effects this could have on the soybean plants. A better situation would have been to let the experiment run past the time where the cotyledons are used up and dropped.