

## Constitutive Expression System of Atrazine Chlorohydrolase Gene in *Bladyrhizobium japonicum* USDA 110

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*Bladyrhizobium japonicum* USDA 110 is nitrogen fixing bacterium and a root nodule symbiont of soybean (*Glycine max* (L.) Merr.). Nodulation genes of *B. japonicum* USDA 110 are induced by specific flavonoids produced by a host soybean and nodbox is a promoter of these genes. Atrazine, one of triazine herbicides, is most widely used in United States, relatively persistent in soils and detected in groundwater. *AtzA* gene (encodes atrazine chlorohydrolase) of *Pseudomonas* sp. strain ADP dechlorinates atrazine to hydroxyatrazine. In this study, we are constructing the plasmid pNod-atz based on pLAFR3 and containing the 2.7 kb BamHI fragment of *AtzA* gene downstream of *nod* box, and it will be transformed to USDA 110. Genistein, the best inducer of *nod* box, is going to be used as an inducer for USDA 110 (pNod-atz) and metabolites of atrazine can be analyzed using HPLC. Finally this rhizobium will be infected to a host plant. Our aim is establishment of a constitutive chlorohydrolase expression system in *B. japonicum* USDA 110 (pNod-atz) inside nodules, using the rhizobium-plant signal exchange, without IPTG used in conventional recombinant plasmids.