

ABSTRACT

Characterization of Streptomycin Dependent Non-nodulating Mutants of Cowpea Rhizobia

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Several streptomycin dependent mutants of cowpea rhizobia and Bradyrhizobium japonicum were isolated, which were unable to nodulate their respective hosts. One of the non-nodulating streptomycin dependent (JRW3 Sm^D) mutants derived from cowpea rhizobia JRW3 was characterized biochemically and genetically in order to understand the possible role of streptomycin dependent mutations on its nodulation phenotype. The mutant required streptomycin for its growth and was unable to grow at 40°C. Revertants from JRW3 Sm^D mutants were isolated at a frequency of about 10^{-8} . Transformation studies showed that wild type JRW3 (streptomycin sensitive) can be transformed to streptomycin dependence by Sm^D DNA. The results also indicated that streptomycin dependence phenotype was possibly due to two mutations: one conferring streptomycin (Sm) resistance and other making Sm resistant to drug dependence.