

B-132 Response of calli of four rice genotypes to inoculation with *Azospirillum irakense* strain KBC-1

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Rice is unique among cereal crops in its suitability for biological nitrogen fixation in association with many bacterial genera including *Azospirillum*. Nevertheless, nitrogen fixation ability varies with the combination of rice genotype and bacterial strain. Therefore, nitrogen fixation of rice callus cultures with *Azospirillum irakense* strain KBC-1 was investigated using 4 rice genotypes, (Ru 116, Au 27729, Au 27795/1 and Devereddiri).

MS medium supplemented with 2, 4-D 2 mg/l and BAP 0.15 mg/l was used to initiate calli in mature, dehulled caryopses. The calli formed were transferred to modified N-free medium in order to inoculate the bacterial culture. Deep frozen vials containing bacteria were used to prepare the inoculant. After inoculation the cultures were incubated for different time periods and the nitrogen fixation was checked by acetylene reduction assay (ARA) and also by biomass increment. In addition to N-free non-inoculated cultures, controls with N-free non-inoculated cultures and cultures on normal MS medium were maintained. Each treatment was replicated 3 times in a complete random design. Of the 4 genotypes assayed, only Au 27795/1 showed presence of ethylene after 14 days of inoculation. There was a recognizable biomass increment in cultivars Au 27795/1 and Devereddiri in the N-free medium when inoculated with *Azospirillum irakense* strain KBC-1. Furthermore, in the local cultivar Devereddiri biomass accumulation was significantly higher in the N-free, bacteria inoculated medium, compared to N added normal MS medium.

The results indicate that calli of the 4 rice genotypes responded differentially to *Azospirillum irakense* strain KBC-1.