CARBON SUBSTRATE SUPPLEMENTATION ENHANCES THE CONTRIBUTION OF BIOLOGICALLY FIXED N BY *AZOSPIRILLUM* IN RICE-SOIL SYSTEM UNDER CONTROLLED CONDITIONS

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Diazotrophs are investigated to be used in bio fertiliser formulations for wetland rice with the objective of improving production with little environmental impact. Strategies to improve the contribution of associative dinitrogen fixation to the host plant are necessary in this regard. The most common limiting factor for diazotroph activity in soil is the availability of sufficient carbon substrates for the inoculum. The contribution of nitrogen by *Azospirillum irakense* KBC1 to rice variety BG 94-1 when supplemented with rice straw as a source of C was studied under controlled conditions using ^{15}N labelled soil. Combined application of *Azospirillum* and straw contributed significantly than the straw alone or mineral fertilizer alone or straw + mineral fertilizer combined treatments in terms of grain yield or grain N-content. *Inoculum* benefited more from straw over native heterotrophs. Provision of C substrates for the inoculum apparently is important in improving BNF over inoculation alone which could be adding another competitor to the available C pool in the soil.

Keywords: Diazotrophs, rice, Inoculum, C substrates, ^{15}N