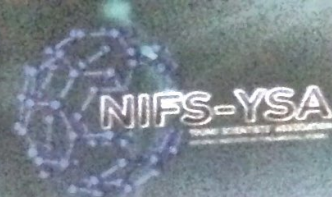




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## Nitrogen uptake and utilization of rice under the influence of Cyanobacteria

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Modern agriculture is largely dependent on the steady supply of synthetic nitrogen (N) fertilizers. However, uptake and utilization of N by plants is relatively low under a range of conditions. On the other hand, excess N supply has major impacts on the environment. Particularly, high N supply promotes greenhouse gas emission from the soil. The role of cyanobacteria in promoting plant N utilization and N uptake has been previously reported. However, how cyanobacteria facilitate the plant N utilization / uptake are not clearly understood. The main aims of this study are to identify genetic variation in N use efficiency of genetically diverse rice germ plasm (40 accessions), test whether critical N plays a role in determining plant N use efficiency, investigate whether cyanobacteria plays a role in improving plant N uptake and utilization, investigate the underlying mechanism of the root-cyanobacterial association under different genetic background not clear. Further understanding of this process will help to improve plant N use efficiency while helping to develop sustainable N management strategies in the rice industry and study whether cyanobacteria can lift the critical nitrogen requirement of the rice plant by triggering the process of N assimilation.

**Keywords:** *Nitrogen Fertilizers, Cyanobacteria, Nitrogen use efficiency*