Agrotechnol 2014, 2:4
http://dx.doi.org/10.4172/2168-9881.S1.009

OMICS Group Conferences
Accelerating Scientific Discovery

2nd International Conference on
Agricultural & Horticultural Sciences
Radisson Blu Plaza Hotel, Hyderabad, India February 03-05, 2014

Functional characterization of ABA responsive gene SAPK9 under soil moisture stress growth condition in rice (*Oryza sativa* L.) plants

Avishek Dey
Indian Institute of Technology Kharagpur, India

Soil water deficit is a serious environmental stress for most of our crop plants. Rice (*Oryza sativa* L.) is a moisture-loving plant and thus its productivity is adversely affected by soil moisture stress (SMS). The phytohormone abscisic acid (ABA) which is the central regulator of drought resistance in plants is produced under SMS conditions. SnRK2 protein kinase family, which is known to play major role in phosphorylation of bZIP transcription factors in the ABA signaling pathway, encodes 10 members in rice, designated as SAPK1-10, are activated in response to hyper osmotic stress and that SAPK9 is also activated by ABA. To investigate the role of SAPK9 in drought tolerance in rice, we searched for presence of allelic variations in SAPK9 gene. These variations may directly be responsible for functional attributes toward conferring tolerance to SMS. Such natural allelic variants can be transformed into sensitive rice genotypes (RGs) through transgenic approach to generate SMS tolerant elite cultivar. Allelic polymorphism in different RGs was checked through molecular cloning and sequencing of SAPK9 gene which showed presence of SNPs. The relative expression level of SAPK9 gene in tolerant and sensitive RGs was checked through real time PCR analysis. To check the global expression profile changes under SMS condition, microarray analysis was done. To confirm function of SAPK9 gene under SMS condition, an overexpression constructs was transformed into sensitive rice genotype through *Agrobacterium* mediated transformation and transgenic analysis was done through PCR and Southern blot. The results so far shows that overexpression of allelic variant of SAPK9 gene improve SMS tolerance and grain yield in rice.

Biography

Avishek Dey has completed his M.Sc. (Genetic Engineering) from West Bengal University of Technology, Kolkata and presently pursuing Ph.D. as a DST-INSPIRE fellow in Advanced Laboratory for Plant Genetic Engineering, IIT kharagpur, West Bengal.

avid.iitkgp@gmail.com