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Abstract for Oral Presentation

Title of the paper

Heterologous-expression of transcription factor *SbAP37* in rice under salt and drought stress alleviates the protein expression as revealed by Q-TOF analysis

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Abstract: Transcription factors with an APETELA2 (AP2) domain have been implicated in various cellular processes involved in plant development and stress responses. *AP37*, a transcription factor has been cloned from *Sorghum bicolor* and the gene *SbAP37* was inserted under the control of stress inducible *ABA2* promoter into pCAMBIA1301 vector using GUS as reporter gene and hygromycin as a selectable marker. The vector was immobilized into *Agrobacterium tumefaciens* strain LBA4404. The transformed *Agrobacterium* containing gene and promoter were used for genetic transformation of rice. For *in planta* transformation, plantlets were raised from *Agrobacterium* infected seedlings. The putative transgenics of T₀ generation were confirmed by PCR amplification for *SbAP37* gene, *hptII* marker (hygromycin) and *ABA2* promoter. While gene insertion and gene copy number were ascertained by Southern blot analysis, expression of *SbAP37* gene at the transcriptional level was checked by quantitative real-time PCR analysis. Transgenic plants *ABA2:SbAP37* (second generation) showed significantly enhanced salt and drought tolerance at the reproductive stage (a stage that is highly sensitive to stress) over untransformed control plants in greenhouse conditions with higher grain yield. Transgenics exposed to 150 mM NaCl stress modulated a whole gamut of proteins as revealed by Q-TOF analysis. A total 331 proteins have been found modulated which are functionally annotated. Out of them, transgenic plants showed 11 downregulated, 26 upregulated, 101 common, and 193 new proteins when compared with untransformed control plant. Thus, *SbAP37* appears to be a candidate gene for imparting drought stress tolerance in rice.

Key Words: *Oryza sativa*, *AP37* and *ABA2* **Corresponding author: E-mail ID:**
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