PULSUS
WWW.PULSUSCONFERENCE.COM

J Med Biotechnol 2018, Volume 2

World Biotechnology Congress

July 16-17, 2018 Berlin, Germany

Improved shoot regeneration, salinity tolerance and reduced fungal susceptibility in transgenic tobacco constitutively expressing PR-10a gene

Mitali Dabi, Parinita Agarwal, Prashant More, Khantika Patel, Kalyanashis Jana and Pradeep K Agarwal
CSIR-Central Salt and Marine Chemicals Research Institute, India

Abiotic stresses such as drought and salinity exerts adverse effects on plant growth and development. To combat these stresses plants are having unique mechanism and it is largely regulated by plant hormones, which in turn, orchestrate the different biochemical and molecular pathways to manoeuvre stress tolerance. The PR-10 protein family is reported to be involved in defense regulation, stress response and plant growth and development. The JcPR-10a overexpression resulted in increased number of shoot buds in tobacco (*Nicotiana tabacum*), which could be due to high cytokinin to auxin ratio in the transgenics. The docking analysis shows the binding of three BAP molecules at the active sites of JcPR-10a protein. JcPR-10a transgenics showed enhanced salt tolerance, as was evident by increased germination rate, shoot and root length, relative water content, proline, soluble sugar and amino acid content under salinity. Interestingly, the transgenics also showed enhanced endogenous cytokinin level as compared to WT, which, further increased with salinity. Exposure of gradual salinity resulted in increased stomatal conductance, water use efficiency, photosynthesis rate and reduced transpiration rate. Furthermore, the transgenics also showed enhanced resistance against *Macrophomina* fungus. Thus, JcPR-10a might be working in co-ordination with cytokinin signaling in mitigating the stress induced damage by regulating different stress signaling pathways, leading to enhanced stress tolerance.

mitalisinh03@gmail.com