| Raising Stress Tolerant Rice through Genetic Manipulation of Cyclophilins | |
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Figure 1: A hypothetical model proposing the diverse functions of cyclophilins operative at cellular level during stress. Cyclophilins possibly operate through diverse strategies to prevent stress-induced injury via its gene regulatory and cellular protection pathways 1. Signaling via membrane localized receptors, 2. Folding and refolding of aggregated proteins, 3. ROS scavenging 4. RISC assembly and PTGS of target genes, 5. Transcription and pre mRNA processing, 6. Ubiquitin dependent protein degradation, 7. Ion homeostasis, 8. Mitochondrial protein folding and stabilization, 9. Histone modification and remodeling, 10. Cellular protection and damage repair.

References

- 1. http://www.fao.org/publications/sofie/2014/en/
- 2 http://www.fao.org/fileadmin/templates/est/ COMM_MARKETS_MONITORING/Rice/Documents/ Rice_Profile_Dec-O6pdf
- 3 Kumari S, Singh P, Singla-Pareek SL, Pareek A (2009) Heterologous expression of a salinity and developmentally regulated rice cyclophilin gene (OsCyp2) in E. coli and S. cerevisiae confers tolerance towards multiple abiotic stresses. Mol Biotechnol 43:95-96.
- Handschumacher RE, Harding MW, Rice J, Drugge RJ, Speicher DW (1984) Cyclophilin a specific cytosolic binding protein for cyclosporine A. Science 226: 544-547.

- 5 Marivet J, Margis-Pinheiro M, Frendo P, Burkard G (1994) Bean cyclophilin gene expression during plant development and stress conditions Plant Mol Biol 26: 1181-1189.
- 6 Marivet J, Frendo P, Burkard G (1995) DNA sequence analysis of a cyclophilin gene from maize developmental expression and regulation by salicylic acid. Mol Gen Genet 247: 222-228
- Scholze C, Peterson A, Diettrich B, Luckner M (1999) Cyclophilin isoforms from Digitalis lanata. Sequences and expression during embryogenesis and stress. J Plant Physiol 155: 212-219
- 8 Godoy AV, Lazzaro AS, Casalb M
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