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Analysis of Seven Putative Na⁺/H⁺ Antiporters of *Arthrospira platensis* Nies-39 using Transcription Profiling and in Silico Conserved Domain Studies: An Indication towards Alkaline pH Acclimation

Bhagavatula Vani*, Monika M. Jangir and Shibasish Chowdhury

Birla Institute of Technology and Science, India

Seven putative Na⁺/H⁺ antiporters have been reported to be present in *A. platensis* NIES-39 which thrives well even at pH 11. This raises a question whether all seven antiporters are equally involved in alkaline pH homeostasis in this cyanobacterial strain. To this end, we studied the transcriptional profile of these seven putative Na⁺/H⁺ antiporters. We found a significant difference in the m-RNA levels of the seven antiporters at pH 7, 9 and at 11. Also, a temporal pattern of the expression profile was observed. *In silico* conserved domain analysis of these seven putative antiporters indicated the presence of nine different kinds of domains in all, out of these nine domains, six domains function as monovalent cation-proton antiporters and two of the domains function as the universal stress protein (Usp) category which are UspA and Usp Like. The protein sequence of these putative antiporters have been compared and correlated with the solved crystal structure available from the CPA Super family (CPA1 & CPA2). The *In-silico* analysis and the real time PCR analysis, put together, suggest an active participation of these seven putative Na⁺/H⁺ antiporters in alkaline pH homeostasis of this cyanobacterial strain.

Biography:

Bhagavatula Vani is presently working as Assistant Professor in Department of Biological sciences, BITS, Pilani, India. She has carried out her Doctoral in the field of abiotic stress and photosynthesis in Rice plants under the supervision of Late. Prof. Prasanna Mohanty, JNU, India who is an exponent of photosynthesis from India. She has published some of her works in journals like JPP, Photosynthetica, Plant and Soil and Biologia Plantarum. She has also worked on nitrogen metabolism and abiotic stress in the wonder microbe, *Arthrospira platensis* (*Spirulina platensis*) and published some of the results.