

## Is the position of nucleotides in conserved miRNA associated with specific functional role in growth and development: Case study of miR miR160, miR164, miR167, miR390 and miR393

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The response of sessile plants to environment and stress has been evaluated. Recently the role of miRNA in response to phytohormone auxins concentrations shows tremendous responses. This is possible due to gene regulation at post transcription level by miR160, miR164, miR167, miR390 and miR393. This in turn could be summed by the important role played in morphogenetic changes associated with embryogenesis, differentiation root & shoot development. The auxins role in plants response to light and gravity, touch, adaptation of plant to environmental and plant pathogens is known at molecular level. However, the transcriptional and translational control executed by small conserved miRNA is being understood to a greater extent now. These small miRNA cleave transcription factors like ARFs, NAC, TIR1/F-box AFB. The conserved miRNA associated with the auxin responses include miR160, miR164, miR167, miR390 and miR393. The validated targets are transcription factors like ARF10, NAC1, ARF8, ARF and TIR1/F-box AFB by cleavage of mRNA and also by translational suppression. The phenotype associated with light and gravity, touch, adaptation of plant to environmental and plant pathogens are reported. The work involved sequence based analysis throughout plant kingdom for experimentally, miRNA reported in miRBase, nucleotide weight matrix investigations by using DAMBE. The six genus belonging to Fabaceae, nine genus to Poaceae, four genus belonging to Brassicaceae, three genus belonging to Solanaceae, Malvaceae and Pinaceae and two genus belonging to Rutaceae and Rosaceae families. A relation has been obtained for the mature miRNA (reported to Date in miRBase) across plant kingdom for the nucleotides in key portions of Argonauate identification (position 1), stringent binding (position 9-12) and seed region (position 2-10) are analysed. This work shows selectivity of nucleotides and shows a pattern that in turn could be related to auxin response in conserved miRNAs miR160, miR164, miR167, miR390 and miR393 associated with auxin responses.

### Biography

L I Shukla has completed his PhD from Jawaharlal Nehru University and Post-doctoral studies from Oakland University, Oklahoma State University, USA. She is the Assistant Professor, at premier Department of Biotechnology, Pondicherry University, Kalapet, Pondicherry. She has published more than 25 papers in reputed journals and has been serving as an Editorial Board Member of reputed.

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