



REGIONAL CENTRE FOR BIOTECHNOLOGY
Seminar series

**“SUMOylation: Fine tuning of biotic and abiotic stress
responses in plants”**

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Abstract

Plants, being sessile organisms, are subjected to ever changing different biotic and abiotic stresses. To cope with stress, they have evolved complex mechanism to balance their growth, development and defence response with appropriate mechanism but how they respond swiftly to the environmental cues is not yet known. Post-translational modifications, such as SUMOylation, play an important role by quickly altering the fate of pre-existing proteins and protein complex. SUMOylation or SUMO (**S**mall **U**biquitin-related **M**odifier) conjugation is one of the regulatory post-translational modifications. SUMO conjugation is a highly dynamic process that can be rapidly reversed by the action of SUMO proteases. SUMO conjugation/de-conjugation on proteins is critical during the stress but it remains challenging and unresolved, especially in plants. We have identified the SUMO proteases in Arabidopsis and are investigating the mechanistic role of these regulatory enzymes in biotic and abiotic stress. Recently, we revealed the ULP-like SUMO protease gene family in rice and demonstrated its critical role in salt stress. Here, we will have an overview of the SUMO proteases in biotic and abiotic stresses in plants and highlight the 'fine-tuning' of SUMO conjugation/de-conjugation in balancing growth versus stress.
