

## Detection of *Bt* protein metabolites presence in insect and their predator transferred through GM rice using ELISA technique

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Transgenic crops were developed to show resistance against the target chewing insects in transgenic crops. Genetically modified rice was also developed to show the resistance to its major insect pests such as Lepidopteran in paddy rice. However some non-target effects were found from genetically modified crops. *Stenchaetothrips biformis*, the most important rice seedling insect pests and one of nontarget insect species of *Bt* rice. In this experiment ELISA was performed for three *Bt* rice lines including H2A, H1C, E1 (expressing the Cry2A, Cry1C and Cry1Ab/Vip3H protein respectively) and their non-*Bt* correspondent parental cultivars HCK and Xiushui 110 under laboratory conditions. For thrips and predator *Orius sp.*, ELISA was performed to observe the uptake of *Bt* toxin from transgenic plants to insects and ultimately upto third trophic level. Although sucking insects have no specific site of action of *Bt* toxin in digestive system. A leaf dip bioassay was carried using the leaf from control cultivar. Different concentration of Cry2A, Cry1C and Cry1Ab proteins in bioassay to observe the effects on mortality of *S. biformis* at different levels was also conducted. Higher levels of *Bt* protein were detected in case of H2A (Cry2A) rice plants and higher concentration was observed in case of larvae as well as adult thrips. While higher concentration of *Bt* protein in case of H1C (Cry1Ac) was also observed. Normal levels of *Bt* protein were detected in case of E1 (Cry1Ab) concentration in *Bt* rice plants, larvae as well as adult thrips. While no *Bt* protein was detected in case of control cultivars in all tested control cultivars. No *Bt* protein was detected in predator *Orius sp.*

### Biography

Zunnu Raen Akhtar has completed his PhD at the age of 30 years from Zhejiang University, China and postdoctoral studies from Zhejiang University School of Biotechnology. He is the Assistant Professor of Biotechnology a well renowned ranked 2nd Pakistani University. He has published more than 10 papers in reputed journals. He is an expert of Biotechnology in his country and works on preparation of GM crops and their proteomic and metabolomic analysis.

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