TARGETING THE KEY PROTEIN RESPONSIBLE FOR INSECT MEDIATED VIRAL TRANSMISSION: AN APPROACH TOWARDS RESISTANCE DEVELOPMENT IN PLANTS

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Hemipteran group of sap sucking insect pests namely, *Nephottetix sp., Lipaphis erysimi*, *Aphis craccivora*, *Bemesia tabaci* and *Myzus persicae* severely damage many important food crops including rice and mustard not only by extracting the plant's nutrition but also transmitting disease causing viruses. Due to their unique feeding behaviour with piercing mouthparts their control has been difficult. Some mannose binding lectins from *Allium sativum* leaf (ASAL) and *Colocasia esculenta* tuber (CEA) have shown detrimental effects on the growth and development of a wide range of sap sucking insect pests. ASAL was further expressed in rice under the control of CaMV35S and phloem specific promoters and the efficacy of rice transgenics was monitored on the performance of *Nephottetix sp*, commonly known as green leafhopper (GLH) as well as *Nilaparvatha lugens* (BPH). GLH resistant T_1 ASAL rice plants were further evaluated for monitoring the incidence of tungro disease, caused by co-infection of GLH vectored Rice tungro bacilliform virus (RTBV) and Rice tungro spherical virus (RTSV). Surprisingly, the transgenics after artificial inoculation with viruliferous GLH did neither show any disease symptom nor could provide significant viral titre. The results to be presented are novel findings about such resistance development against the infection of RTBV/RTSV in ASAL expressing transgenic rice plants. Incidentally, ASAL has previously shown to have specific interaction with the typical insect borne "symbionin" protein having significant role in insect mediated virus transmission that opens a new avenue towards developing virus resistance in economically important crops.