Project Title: Parasitoid Wasps as A Source Of Novel Insecticidal Molecules

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The venom of the wasps was further investigated for isolation of the toxic/virulent/insecticidal proteins/peptides by ammonium sulphate precipitation, gel filtration and ion-exchange chromatography. We isolated proteins/peptides from the venom of wasp B. hebetor with molecular masses ranging from 17 to 37 kDa respectively as determined by SDS-PAGE. The functional analysis of the venom and its constituents was performed by micro injections of crude and treated venom and same was reproduce by HPLC fractions. Bioactive genes were isolated from the venom blend of the wasp species Bracon hebetor (Say) (Hymenotera, Braconidae) by RT-PCR. One of the venom gene "Gamma glutamyl Transpeptidases" with high BLAST homology was selected for detailed studies and isolated through PCR. Amplified products were analyzed on 1% Agarose gel electrophoresis, cloned in E.coli and screening of blue & white colonies of E.coli were performed by cloning of the isolated genes and their expression in heterolgous hosts, sequenced and multialigned with the other sequences in data base. Further studies will lead to characterization of such insecticidal proteins/peptides in cell lines. Overall, the grant was found highly useful as many students completed their research work using this grant. The work has been presented in conferences/symposia and appreciated by the scientists and researchers in this area. Publications will possibly be arising out of this work in near future, thus contributing knowledge to the scientific community in capacity building and professionals involved in insect control programmes will definitely equip themselves with the knowledge of "Insect genetics"