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In-silico analysis of molecular phylogeny and evolutionary relationship among insecticidal resistance genes from important agricultural pests

R Gandhi Gracy[1], Rashmi M A[1], Vinutha B K[1] and S K Jalali[2]
[1]University of Agricultural Sciences, India
[2]National Bureau of Agriculturally Important Insects (NBAII), India

Insecticide resistance is an evolved character of herbivore insects, which pose a serious threat to the agriculture. Recent advancement in molecular sciences and bioinformatics paved a way for better understanding of the important issues such as insecticidal resistance. The present study is aimed to know the evolutionary level of the genes responsible for the insecticidal resistance among important agricultural pests. Cytochrome Oxidase- CY P450 is a metabolic oxidative enzyme, found in almost all the eukaryotes. Over expression and structural changes in the CYP450 proteins contribute for the metabolism of insecticides in the resistance population of insects.

This work is mainly done to analyse the cyp-450, AchE enzymes among different insects and their molecular phylogeny relationship. The gene sequences of insecticidal resistance genes such as AchE, Cyp-450 from 10 important insect pests *viz., Helicoverpa armigera, Helicoverpa zea, Mamestra brassicae, Cnaphalocrocis medinalis, Spodoptera litura, Spodoptera exigua, Acyrthosiphon pisum, Myzus persicae, Chilo suprasalis, Lucinodes orbonalis and Bombyx mandarina* have been retrieved from GenBank. *Helicoverpa armigera* sequences have been used for query to retrieve protein sequences by BlastP. The sequences have been analyzed for their similarity index and aligned using Clastal-W tool. The phylogeny was constructed for all these specimens by using MEGA 5 software. Sequence from *Bombyx* sp has been used as out group. The phylogeny tree showed that *H. armigera* is in the top of the clad with recently evolved character compared with other insect pests.

Biography

R Gandhi Gracy has completed her M.Sc. (Agri. Entomology) from TNAU, Coimbatore and at present doing Ph.D. in Agricultural Entomology at UAS-GKVK, Bangalore. She has done 3 months training course on "Application of Bioinformatics in Entomological Research" at Cornell University, New York, USA.

gandhi_gracy@yahoo.co.in

In vitro studies on the interaction of *P.fluorecens* and certain tested soil microorganisms

A. A. Abobaker Basha
South Valley University, Egypt

This study was conducted to evaluate interaction between free nitrogen fixing bacteria of *Azospirillum* and *Azotobacter* and *Pseudomonas* fluorescence under *in vitro* condition.

The results clearly indicated that an antagonistic effect was found for *P. fluorescens* against *Azotobacter chroococcum* and *Azospiillum Lipoferum* as indicated by production of inhibition zone around *P. fluorescens* growth and with reduction of *Azospirillum Lipoferum* or *Azotobacter chroococcum* population in peat carrier mixed inoculants. Also, the results show that growth of *Rhizoctonia sp*. was inhibited by *P. fluorescens* in vitro as indicated by the development of inhibition zones.

The antagonistic effect of *P. fluorescens* due to its production of several toxic metabolites, suppresses the nitrogen fixer bacteria and pathogen fungi.

These antagonistic potential must be explored in depth by more studies and researches to point out present and possible future trends in inoculants' technology and a consideration of time and application methods for bacterial inoculants, to evaluate of their actual status and future use.

Biography

A. A. Abobaker Basha has completed his Ph.D. at the age of 43 years from Assuit University. He is the Head of Soil and Water Department, Faculty of Agriculture -South Valley University. He has published more than 12 papers in reputed journals.

elbashaabobaker@yahoo.com