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ISOLATION OF TOXIC BACTERIAL STRAINS FROM HEMOLYMPH OF LEPIDOPTERAN PEST; *Helicoverpa armigera* (HUBNER).

Moussa, S.M.[1]; A. Ojha[2]; A. Sharma[2] and R. K. Bhatnagar[2]

1- Plnat Protection Research Institute, ARC, Dokki, Giza, Egypt

2- International Centre for Genetic Engineering and Biotechnology (ICGEB), New Delhi, 110 067, INDIA.

ABSTRACT

The gram-negative bacterium is a *Serratia marcescens* ; it causes diseases in vertebrates, invertebrates and human being. *Enterococcus faecalis* has been isolated from *Galleria mellonella* and its toxicity to the same insect has been investigated. *Pseudomonas plecoglossicida* has been isolated from the internal organs of the diseased fish, *Plecoglossus altivelis*. Also, it has been reported to be causative agents of fish disease. Here, we isolate the above mentioned bacterial strains from single host (*H. armigera*) larvae while rearing the insect under laboratory condition. Their toxicity assays were performed and found toxic and cause insect death within 20h of treatment. Among them; *S. marcescens* found to be the most toxic strain against *H. armigera*. Also, we found that the wounded insect body are the only pave to these bacterial strains to penetrate insect body and cause the toxicity.

Keywords: *Helicoverpa armigera*, Bioassay, toxic bacteria, biochemical test.

INTRODUCTION

The cutleaf worm *Helicoverpa armigera* is an important pest of cotton crop and world-wide causes nearly loses per annum in India alone over 1000 crores, Duraimurugan and Regupathy ,(2005). Workers across the globe are working to sort out the problem of the insect pest, in which unavailability of the insect pest throughout the year is the biggest problem. *H. armigera* was first colonized in laboratory in the year of 1983 in Australia, Gunning ,(1994). Following which, the insect is reared in laboratories throughout the world. Maintaining the insect pest under laboratory conditions is a difficult task. Several infections such as, NPV viruses have been reported to cause genetic drift in the laboratory populations of *H. armigera* pest due to which lab cultures cannot be maintained for more than six generations, Ballal *et al.* (1998). Initially, we have faced difficulties in maintaining *H. armigera* pest under laboratory condition. Thus, in the present study, attempts are made to find out to investigate the cause of mortality in laboratory colonized insects. We have identified three bacteria namely, *Enterococcus faecalis*, *Serratia marcescens* and *Pseudomonas plecoglossicidai* in the diseased hemolymph of the insect. The dyanamics of the growth of the three bacteria was also studied.

MATERIALS AND METHODS

Insect and bacterial identification

The larvae of *H. armigera* were collected from the field of Indian Agriculture Research institute (IARI), New Delhi. The insect larvae were reared on chickpea semi-synthetic diet throughout the experiments. The