Appl. Ent. Phytopath
Vol. 70, No. 1, Sep. 2002

Comparative bioassay of native isolates of *Bacillus thuringiensis* and *B. thuringiensis* subsp. kurstaki on Indian meal moth (*Plodia interpunctella*).

R. MARZBAN
Plant Pests and Diseases Research Institute

ABSTRACT

During one year study, 76 soil samples were collected from (1996-1997) forests and fields of Kermanshah province that had not previously been treated with *B. thuringiensis*. Bacteria were isolated according modified method of Ohba and Aizawa. From 76 samples which were tested, about 59 spore forming bacteria were isolated that only one of these were identified as *B. thuringiensis*. This isolate and two other native isolates were compared with Var. kurstaki through bioassay method on third instar larva of *Plodia interpunctella* that native isolates was more effective than var. kurstaki on third instar larva of Indian meal moth.

Key words: Bioassay, *Bacillus thuringiensis*, Indian meal moth, Isolatin

References

ANGUS, T. A., 1956. Association of toxicity with protein crystallin inclusion of Bacillus sotto Ishawata. Can. J. Microbiol., 2: 122-131.

ANWAR HOSSEIN, M., AHMED, S. and S. HAQUE, 1997. Abundance and distribution of *Bacillus thuringiensis* in the agricultural soil of Bangladesh. J. Invert. Pathol., 70: 221-225.

BARON, E. and S. M. FINEGOLD, 1990. Diagnostic microbiology. 8 ed., C. V. Mos. p 171-194.

BERLINER, E., 1911. Uber die schlaffsucht der Mehlmotlenroupe *Ephestia kueniella* Zell. Und ihren Erreger *Bacillus thuringiensis* nsp., Z. Angew Entomol, 2, 29-56 (Cited in the Safety of microbial insecticides pp 36-39).

DELUCCA, A. J, SIMONSON, J. G. and A. D. LARSON, 1981. *Bacillus thuringiensis* distribution in soils of the United States. Can. J. Microbiol., 27: 865-870.

HEIMPEL, A. M. and T. A. ANGUS, 1958. The taxonomy of insect pathogens related to *Bacillus cereus* Frankland and Frankland. Canad. J. Microbiol., 4: 531-541.

HO SAN, K., DAE WON, L., SOO DONG, W ., YONG MAN, Y. and K. SCOK KWON, 1998. Distribution, Serological identificaion and PCR analysis of *Bacillus thuringiensis* isolated from soils of Korea. Curr. Microbial., 37: 195-200.

ISHAWATA, S., 1901. On a kind of severe flacherie (Sotto disease). I. Dianihen Sanshi Kaiho 114, 1 (Cited in the Safety of microbial insecticides, pp 36-39).

JOHNSON, D. E.; W. H. MCGAUGHEY and B. D. BARNETT, 1990. Small scale bioassay for the determination of *Bacillus thuringiensis* toxicity toward *Plodia interpuctella*. J. Invert. Pathol., 57: 159-165.

MATTES, O., 1927. Parasitore krunkheitender mehlmottenlarven und versuche uber ihre verwendbarkeit als biologissches Bekam P fungs mittel. (Cited in the Insect Pathology, 633 pp.)

OHBA, M. and K. AIZAWA, 1985. Distribution of *Bacillus thuringiensis* in soils of Japon. J. Invert. Pathol., 47: 277-282.

WEST, A. W., BURGES, H. D., DIXON, T. J. and C. H. WYBORN, 1985. Survival of *Bacillus thiuringiensis* and *Bacillus cereus* spore inocula in soil: effects of pH, moisture, nutrient availability and indigenous microorganisms. Soil Biol., Biochem., 17: 657-665.

Address of the outhor: Engg. R. Marzban, Dep. Biocontrol, Res., Plant Pests and Diseases Research Institute, P. O. Box 1454, Tehran-19395, Iran.