Hemocyte Diversity of the American Bollworm *Helicoverpa armigera*

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The hemocytes of the American bollworm *Helicoverpa armigera* (Hübner) were studied in the last instar larvae by phase contrast microscopy to investigate the differences among 14 populations, collected from ten locations, spread over a distance of approximately 3000 km in six different states of India. The cluster analysis of differential hemocytes showed as many as 11 clusters of populations at 5% and six clusters at 10% homogeneity level. The cluster analysis of hemocytes of seven populations from cotton crops showed five and three clusters at 5% and 10% homogeneity levels, respectively. Diversity of hemocytes of four populations from chickpea was wider than that from cotton. The differences in hemocytes of various populations may be due to space, time, host plant, insecticide use, other agroecological conditions, and insect genetic variability *per se*. The field populations of *H. armigera* heavily treated with insecticides appeared to contain more spherulocytes at the expense of plasmatocytes and granulocytes. The treatment of 6-day-old larvae of *H. armigera* with cypermethrin decreased plasmatocytes and granulocytes, and increased prohemocytes and spherulocytes in the hemolymph of last instar larvae. Thus, differential hemocyte counts may serve as an indicator of insecticide exposure and the diversity of insect populations.
KEY WORDS: Diversity; hemocytes; cypermethrin; American bollworm; *Helicoverpa armigera*; prohemocytes; granulocytes; plasmatocytes; spherulocytes; adipohemocytes; oenocytoids.

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