Characteristics of proteinases from larvae of Heliothis armigera and Spodoptera litura

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Abstract: The fifth instars of H. armigera and S. litura were the subjects of this study. The proteolytic activity (PA) of these larvae was highest in the pH range from 9 to 12. Optimum temperature (at pH 11) was around 55?C. Heat stability of proteinases from H. armigera was higher than that of proteinases from S. litura: t(1/2) values were 70 and 32 min respectively. The proteolytic activity of H. armigera and S. litura was decreased under the effect of Hg^{2+}, Zn^{2+}, Fe^{2+}, Pb^{2+}, Cd^{2+} and Cu^{2+}, but was not changed in the presence of Ca^{2+}, Mn^{2+} and Ba^{2+}. However, PA of these larvae was inhibited by trypsin inhibitors (TIs) from soybean, and TIs from momordica seeds (named momosertatins). Further investigation with PAGE containing casein and column chromatography indicated that there were at least two different proteinases in the larvae of H. armigera and S. litura, the major one was a trypsin-like proteinase.

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