

Hormonal Regulation of Immune Protein Hemolin Gene Expression of Indianmeal Moth, *Plodia interpunctella*

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Partial cDNA of hemolin, an insect immune protein, was cloned from indianmeal moth, *Plodia interpunctella*, that is an important pest for many stored products, and the rates of hemolin mRNA expression were demonstrated in each stage of development. A deduced amino acid sequence from the cloned partial hemolin cDNA was approximately 44-54% similar to hemolins of 5 other moths. During development the level of hemolin mRNA was the highest at the time of the larval-pupal metamorphosis, especially at the day 1 of wandering stage. Among the tissues comparison of the wandering 5th instar larvae, hemolin mRNA level was the highest in the integument.

The rates of development and hemolin gene expression were demonstrated by treatments of IGRs (insect growth regulators); KK-42, a imidazole derivative, and RH-5992 (tebufenozide), a nonsteroidal ecdysteroid agonist. When 5th instar larvae were treated with RH-5992, larvae were slipped down their head capsules and stopped feeding behavior. But those larvae did not take off old cuticle layers. The level of hemolin mRNA was increased after RH-5992 treatment. But it was decreased by KK-42 treatment. However, the suppression of hemolin gene expression in the KK-42 treated larvae was recovered when those larvae were subsequently applied with RH-5992. These results suggested that hemolin gene could be up-regulated by ecdysteroid hormone.