

**Thesis Title** Hemolymph Glucose and Protein Levels in the Giant Black Tiger Shrimp, Penaeus monodon : Diurnal Rhythms and the Effects of Unilateral Eyestalk Ablation.

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**Date of Graduation** 10 May B.E. 2536 (1993)

### **ABSTRACT**

The purpose of this study is to determine the diurnal rhythm of hemolymph glucose in the giant black tiger shrimp, Penaeus monodon, and to follow the level of hemolymph glucose after unilateral eyestalk ablation. Diurnal rhythm of hemolymph protein was also determined. The shrimps were sampled from a grow-out pond at 4 hr interval beginning at 16:30 hr. Hemolymph (100 ul) was withdrawn from individual shrimps as soon as it was captured from the pond. Twenty ul aliquot of the hemolymph was determined for glucose concentration using Glucose Liquicolor Kit. Another twenty ul aliquot was determined for protein concentration, using Bradford's method. The

study revealed that both male and female P. monodon had diurnal rhythms of hemolymph glucose level; i.e. it was lowest at 04:30 hr, rose gradually to a plateau at 12:30 hr and began to decline after 20:30 hr. The protein levels were similar throughout 24 hr in both sexes, although a slight difference in the pattern was detected. Following unilateral eyestalk ablation, hemolymph glucose level was lower than that of the control level up to 6 hr, thereafter it returned to the control levels. The studies demonstrates an existence of glucose diurnal rhythm and absence of hemolymph protein diurnal rhythm. It also reveals that unilateral eyestalk ablation caused a suppression of hemolymph glucose level up to 6 hr; suggesting a 6-hr delay in the compensatory response of another optic lobe, probably by producing more crustacean hyperglycemic hormone.