

Thesis Title Biology and Efficiency of Small Water Bug, Sphaeroderma molestum (Duf.) in the Control of Golden Apple Snail, Pomacea canaliculata

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Degree Master of Science  
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Date of Graduation 28 April B.E. 2536 (1993)

#### Abstract

The golden apple snail, Pomacea canaliculata was introduced to Thailand in 1982 for a new pet and food. Because of marketing problem, farmers leaved it in the natural canals, it devastated to agricultural area and become a serious pest of rice seeding, other aquatic plants and also aquatic ecosystem. The effective reproductive rate of the snail made the wide distribution. There are many methods to control the snail sush as chemical control and mechanical control which must be use of high labour and expenses, particulary for chemical control caused impact to the environment. Biological control is one of effective utilization of natural resources.

From the preliminary study of biology of golden apple snail and

small water bug including study of feeding capacity of small water bug in control of golden apple snail in laboratory condition showed as follows.

The golden apple snail had high ability of growth. The weight and size (height) of newly borned snail were 0.002 g. and 0.12 cm. when 40 days old snail were 0.3 g. and 0.72 cm., it must be noted that the weight of 40 days old snail was 150 times of newly borned snail.

The female small water bug laid their eggs on the back of the male. The number of eggs laid per female ranged from 20-70 eggs. The incubation period was 5-6 days. The small water bug developed through five larval instars. The life cycle from egg to adult stage ranged from 41-49 days. Adult could live from 30-80 days. After hatching for one day, the bug could attack the snail by injecting the sucking mouth between operculum and shell of the snail and sucked the body fluid.

In the determination of feeding capacity of small water bug in the control of golden apple snail, it was noted that the bug could feed on 0-40 days old snail which were not large size. Feeding capacity depended on both bug and snail ages. Therefore, it was positive response to the age of the bug but negative response to the age of the snail. The average feeding capacity per day of the fifth larval instar and adult stage when fed on 0-5 days old snail were 2.55, 7.50, 11.95, 20.35, 27.75 and 30.55 snails, respectively as the feeding capacity at various density levels of the bug when abundantly fed with the snail was also investigated. The average feeding capacity of the bug at the density levels of one, three, five and ten insects per box throughout its life were 345.75, 223.39, 261.00, 191.62 snails respectively. The single rearing was the most effective.