Behavior Study and Development of Artificial Nest for Nurturing Assassin Bugs (Sycanus indagator Stal.) Beneficial in Biological Pest Control

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The present work focuses on behavior study of assassin bugs (Sycanus indagator St?l.) and development of artificial nest prototypes for nurturing the bugs for the benefit of biological pest control. Preliminary study showed that the bugs have high predatory potential on pests but not on beneficial insects. The average life-cycle of S. indagator is 144 days, female: male ratio is 1:1.75. The female showed a higher predatory ability and a longer adult-formation stage than male. Females lay eggs in clusters (73 eggs/time/female) with the hatching and larva survival rates of 61.73±1.81 and 61.55±3.82 days, respectively. In nurturing high number of bugs, three main problems arose, and we tried to develop the closed to natural means to solve them. First, females often feed on their own eggs, so the “egg splitting pattern” which separates females from eggs by using pheromones from mixed solution of male manure and footprint was proposed. Second, cannibalism among larvae could be minimized by feeding them daily with enough mealworm. Third, high proportion of males could be solved by feeding them rice moth, which is a high protein nutrient that increases female population. Then we used these means to develop artificial nest prototype, we found that the female egg laying increased by 38 eggs/time/female, hatching and larva survival rates increased by 29.71 and 29.17 %, respectively, with female: male ratio of 1.8:1. From our rice field plantation experiment, S.indagator showed high efficiency in controlling pests with no damage to the surrounding environment.

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