

## FEASIBILITY OF BIOLOGICAL CONTROL OF MITE PESTS USING LOCALLY AVAILABLE PREDATORY SPECIES

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Mite infestation has been a major problem in a wide range of crops grown in Sri Lanka and their population management relies on using acaricides. Biocontrol may be an effective alternate strategy especially using predators. However, only limited information are available on mite predators in local conditions. Therefore, this study was carried out to identify locally available mite predators in selected home gardens in Kandy and Anuradhapura districts and to study the feeding potential and biology of the selected predators. Three predators, *Oligota minuta* (Coleoptera: Staphylinidae), *Stethorus punctum* and *Stethorus tridens* (Coleoptera: Coccinellidae) were identified, while the latter was comparatively uncommon. Feeding rate of *O. minuta* was significantly higher ( $P < 0.001$  Odds ratio = 0.439; 0.400, 0.482) than *S. punctum*, therefore, the feeding rates of other growth stages and the life cycle of *O. minuta* was studied using red spider mite as the prey at laboratory condition (25°C). The adult *O. minuta* consumed eggs and nymphs of mites,  $153 \pm 20.85$ ,  $73.55 \pm 14.95$  per day respectively. The first, second and third larval instars consumed  $16.13 \pm 5.9$ ,  $44.47 \pm 15.9$ , and  $115.7 \pm 24.9$  of eggs and  $12.13 \pm 5.55$ ,  $26.87 \pm 9.12$  and  $75.1 \pm 18.22$  nymphs respectively during their each instar period. Feeding rate of the adult *O. minuta* was significantly higher ( $P < 0.001$  Odds ratio = 4.489; 3.927, 5.131) than other stages and it was followed by third instars. The egg incubation period of *O. minuta* was  $2.4 \pm 0.5$  days and the neonate larvae were active and light yellow in colour. The duration of the first, second and third larval instars of *O. minuta* were  $2.4 \pm 0.5$ ,  $2.5 \pm 0.5$ ,  $3.4 \pm 0.5$  days, respectively. The average pupal period was  $4.8 \pm 0.9$  and adult lifespan was  $19.7 \pm 2.1$  days. Therefore, it can be concluded that the adult and third instars of *O. minuta* play an important role as an effective predator in controlling red spider mites.

**Keywords:** Biological control, Feeding potential, Mite predator, *Oligota minuta*, *Stethorus punctum*