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## A PRELIMINARY STUDY ON THE ARTHROPOD PREDATORY COMMUNITY IN THE CABBAGE ECOSYSTEM

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Cabbage is an important vegetable crop in Sri Lanka. Among the production constraints, insect injuries on cabbage have been highlighted. Cabbage insects are mainly controlled by applying insecticides. However, insecticide spraying is associated with environmental and human health consequences. Therefore, the need for alternative pest control strategies has been highlighted. Among the alternatives, biological control using predators has been recognized. The objective of this study was to explore the predatory community in the cabbage ecosystem.

The predatory community in the cabbage ecosystem was investigated at Dodangolla and Galagedara during June-August, 2012. Predatory insects and spiders associated with cabbage crops were sampled using sweep nets, hand picking and pitfall traps. Sweep net sampling and handpicking were done at weekly intervals for ten weeks. Pitfall trap sampling was carried out at three stages of crop growth, namely seedling, growing and head formation. Two pitfall samples were taken at each stage of growth. Sampled specimens were preserved in the dry or wet state. Collected carabids, coccinellids and spiders were identified through previously published identification keys. Predatory species communities, abundance of predators, dynamics of predatory fauna were examined and the data were analyzed by using the Chi-Square test, in Systat 13 SPSS software.

Three Coccinellid beetle species, *Coccinella octomaculata* (Fabricius), *Coccinella transversalis* (Fabricius) and *Coccinella sexmaculata* (Fabricius) were found in Dodangolla and Galagedara cabbage fields. Carabid species, *Cicindela punctulata* (Olivier) and *Bembidion quadrimaculatum* (Linnaeus) were found in Galagedara while *Harpalus pensylvanicus* (De Geer) was found at Dodangolla. Three spider groups, wolf spiders (Lycosidae), sac spiders (Clubionidae) and crab spiders (Thomisidae) were found in both fields. The presence of the above coccinellid species in vegetable fields have been documented, but the records of carabids were scant.

Abundance of predators (coccinellids, carabids and spiders) varied significantly with the stage of growth of the crop, seedling, growing and head formation, in both fields (Likelihood (LH)  $\chi^2 = 49.4$  df=2 P<0.001). A similar significant variation was found in Dodangolla (LH)  $\chi^2 = 37.7$  df=2 P<0.001) and Galagedara fields (LH)  $\chi^2 = 13.8$  df=2 P<0.001). The total predator counts as collected by sweep netting and handpicking within the ten-week period did not show a significant variation with time and similarly did not show significant variation by the fields. Predator availability in the field at Dodangolla, which was a pesticide-free field, was higher (61%) than the conventionally managed field at Galagedara (39%). Overall, the results indicate the presence of predators in the cabbage ecosystem and their response to insecticide use in the crop.