20-202

TAXONOMY AND BIOLOGY OF THE THRIPS PARASITOID GENUS CERANUSIS WALKER (HYMENOPTERA: EULOPHIDAE)

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Recent interest in biological control of thrips pests (Thysanoptera) brought to light several problems associated with the thrips-attacking Entedoninae (Eulophidae). The taxonomy of this genus is in a very poor state worldwide. The extremely small size and rarity of collection of these parasitoids has contributed to the lack of taxonomic activity and makes their identification by current workers difficult. Our objective is to clarify species issues in the genus Ceranusis Walker, examine the type material, and provide a key to the world species of Ceranusis and other noteworthy entedonines which are known to attack immature stages of thrips.

A review of the Nearctic species of Ceranusis has been completed (in press, Transactions of the American Entomological Society). One new species, C. loomansi S. Triapitsyn & Headrick, was described. Four other species of Ceranusis are redescribed and illustrated based mainly on a study of their type specimens as well as on additional material from the USA and Japan. Lectotypes are designated for C. americanensis (Girault), C. nabilaepennis (Williams) and C. russelli (Crawford). A key to eight species belonging to four entedonine thrips-attacking genera is given, and host associations are indicated for those species.

20-203

SEASONAL ABUNDANCE OF THE CITRUS LEAFMINER AND ITS PARASITOIDS IN FLORIDA CITRUS

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Seasonal abundance and parasitism of the citrus leafminer Phyllocnistis citrella Stainton, were investigated from summer 1993 through December 1995 on "Taftii" limes in Florida. Citrus leafminer densities increased from spring through fall and declined during winter 1994 and 1995. Eight species of parasitoid were collected: diteropods and lepidopterous leafminers, comprised about 80% of the parasitoids which emerged from P. citrella. Species and abundance of adult parasitoids varied considerably between leafminer generations. Based on the examination of 15,000 larvae and pupae of the leafminer, these parasitoids are apparently everywhere throughout the region, and parasitization rates exceeding 50% have been observed in unsprayed groves. In general a positive correlation between leafminer populations and parasitoid densities demonstrated that indigenous parasitoids significantly reduced leafminer densities 2.5 years after its invasion of Florida.

20-204

EFFECTS OF LINEAR FURANOCOUMARINS FROM CELERY ON TWO HOST-PARASITOID SYSTEMS: TRICHOPLUSIA NI - COPIDOSOMA FLORIDANUM AND SPODOPTERA EXIGUA - ARCHITAS MARROMARUS

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Experiments were conducted to determine the impact of photosensitized linear furanocoumarins, present in celery (Apium spp.) and related plants on two host-parasitoid systems. We compared the development, size and survival of parasitoids reared from host fed diets containing linear furanocoumarins with those of unexposed herbivores. A system consisted of the polyembryonic egg-larval parasitoid, Copidosoma floridanum (Ashmead) (Hymenoptera: Encyrtidae), reared from Trichoplusia ni (Hübner) (Lepidoptera: Noctuidae), The second system consisted of the solitary larval-pupal parasitoid, Architas marmoratus (Townsend) (Diptera: Tachinidae) reared from Spodoptera exigua (Hübner) (Lepidoptera: Noctuidae). Increasing dietary concentrations of linear furanocoumarins prolonged larval development of T. ni but did not affect T. ni size or survival. However, increasing concentrations of furanocoumarins in the host's diet not only delayed development of C. floridanum but increased parasitoid mortality. In contrast to T. ni, increasing dietary concentrations of linear furanocoumarins increased the mortality of S. exigua. However, furanocoumarin concentration did not affect the size of surviving S. exigua. Increasing concentrations of furanocoumarins in the diet of S. exigua resulted in increased mortality of A. marmoratus. Similar to the effects on S. exigua, increasing concentrations of furanocoumarins did not affect the size of surviving A. marmoratus. Despite the prolonged larval development of S. exigua, there was no effect on A. marmoratus development time following host pupation. These results suggest linear furanocoumarins have differential impacts on the two systems. The linear furanocoumarins did not affect polyembryonic development of C. floridanum, but were toxic to developing immature parasitoids. The linear furanocoumarins did not appear to be directly detrimental to A. marmoratus, but their impact was mediated through stresses to the host, S. exigua.

20-205

THE TRENDS OF DIAMONDBACK MOTH PARASITOID ON CABBAGE IN RELATION TO DIFFERENT MIXED CROPS

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Diamondback moth (DBM), Plutella xylostella (L.) is the most important pest on cabbage in North Vietnam. The population fluctuation and abundance of the pest was investigated weekly on cabbage (Brassica oleracea L. B. & gongloides L.) from November to March of two years 1992-1994. The investigations carried out in two localities of Red River Delta showed that of two important parasitoids reared from DBM, the pest pupae parasitized by the pupal parasitoid Phaeogenes sp. (Ichneumonidae) was very low (maximum 3.3%) in comparison with the sole larval parasitoid Coenio (= Apanteles) plutellae Kurdj. (Braconidae) (average 30.8%).

It was found that cabbage fields adjacent to maize and rice fields often have significantly lower parasitized pest population by C. plutellae than those on cabbage intermixed with different crops of Solanaceae, Fabaceae groups and some other decorative flowers(Asteraceae), for the maximal proportion of parasitized pest larvae was less than 25% (average 13.1%) on cabbage grown alone compared to percentage of parasitism up to 40% (average 17.7%) on the mixed planting cabbage with different crops.

In addition, cabbage fields of both above localities often treated by some pesticides as Cattap (PADAN 95BHN), Phenthoate+Ethofenprox (CIDM) but it was observed that the peak of parasitoid populations usually occurred in the middle and towards the end of the crop.