

النحالة وبحوث النحل في وحدة بحوث النحل في الأردن

**FIRST RECORD OF CRYPTOPHAGUS HEXAGONALIS  
(COLEOPTERA: CRYPTOPHAGIDAE) WITHIN THE HONEYBEE  
(APIS MELLIFERA) COLONIES**

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**Abstract:**

Because of the potential threat of the small hive beetle, *Aethina tumida* (Coleoptera: Nitidulidae), to apiculture in Jordan, local beekeepers started to search more carefully for any beetles in hives. In spring 2005, we found adult beetles and larvae in two *A. m. ligustica* colonies, which were later identified as *Cryptophagus hexagonalis* (Coleoptera: Cryptophagidae). Even for the laymen it is hard to confuse the much smaller *C. hexagonalis* with *A. tumida*. In order to evaluate *C. hexagonalis* infestation levels, a survey of all colonies (64 *A. m. ligustica* & 26 *A. m. syriaca*) at 90 surrounding apiaries within a 3 km radius was carried out. *C. hexagonalis* was only found in 11 *A. m.*

*ligustica* colonies of relatively small size (- 5 frames of bees; maximum number of 24 adult beetles and 11 larvae per colony; where the mean was 8.09 beetles & 5.18 larvae). While the adult beetles were preferentially found in corners, the larvae were only found in wax crashes of the bottom board. Indeed, five colonies with adult beetles but without wax crashes, did not show any beetle larvae, suggesting that wax crashes may be relevant for reproduction of *C. hexagonalis*. Not a single infected colony showed any comb damage or fermented honey as known from small hive beetle mass

reproduction. *C. hexagonalis* adults were collected from colonies and introduced into six small plastic containers (N = 10 each), which were provided with pieces of comb containing honeybee brood, pollen & honey, analogous to the laboratory rearing of *A. tumida*. The containers were incubated in a dark climate chamber at 25° C and 60% relative humidity. Although the beetles survived for up to 26 days, no reproduction occurred. Our observations show that *C.*

*hexagonalis* can be associated with honeybee colonies, where it can reproduce in weak colonies with wax crashes on the bottom board.

However, these beetles are not reproducing on bee brood, pollen or honey, even in the absence of honeybees. Therefore, damage to colonies is probably small if not absent. Thus, in contrast to *A. tumida*, *C.*

*hexagonalis* seems to be a rather harmless associate of honeybee colonies. We underline the importance of keeping strong colonies and correct diagnosis in honeybee pathology.

Key words: *Cryptophagus hexagonalis*, *Aethina tumida*, *A. m. syriaca*, Jordan.

## **Beekeeping & Apicultural Research at the Bee Research Unit of Jordan**

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Beekeeping was practiced by the traditional methods using beehives made of mud and straw and rearing the local bee *Apis m. syriaca*, nowadays beekeepers are seeking behind the modern beekeeping, the modern beehive are substituting the traditional ones and new races of bees are also imported and reared. *Apis m. syriaca* is a fertile subject to study; since researches done on the biology, behaviour, and genetics of this strain of honeybee are very limited. The statistics also showed that the number of beekeeper in Jordan reach over 1000 with about 60,000 beehives (in 2003) distributed in the following categories: hobbyist beekeeper-non-professionals- (who owns less than 10 beehives) 60% of the total beekeeper, part-time beekeeper (10 -25 beehives) 10%, full-time beekeeper (25-100) 20%, professional beekeepers (more than 100 beehive) 10%.

Jordanian beekeepers produce about 20% of the local honey consumption where the import reaches about 282 Tons a year. The year 2002 was the year of foundation of the "Bee Research Unit" which is responsible for conducting applied and basic research and transferring new technologies in apiculture to the local beekeepers by giving training and technology transferring to the beekeeping staff at extension service and a group of beekeepers, the BRU succeeded to get several international grants and conducted several research projects one of them was the establishment of a reservation apiary of the *Apis m. syriaca*.