

SOME MITES OF THE HONEY BEE *APIS* *MELLIFERA* L. HIVES IN IRAN

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Keywords: Honey bee, hives, mites, Iran

Debris were collected from honey bee hives (*Apis mellifera* L.) during the spring and autumn, from November 1990 to November 1993. Debris samples from 22840 bee hives belonging to 138 apiaries in 17 provinces were collected. A total of 36 species from 38 genera of 30 families were identified. 16 species were new records:

- 1- *Klemania aegyptiacus* Naser & Abow-Awad
- 2- *Gamasellodes bicolor* (Berlese)
- 3- *Lasioseius penicilliger* (Berlese)
- 4- *L. floridensis*-group n.sp.
- 5- *Proctolaelaps scolyti* Evans (= *ulmi* Hirsch)
- 6- *Eulaelaps stabularis* (Koch)
- 7- *Halolaelaps ca saproincisus* Hirsch
- 8- *Parasitus fimetorum* (Berlese)
- 9- *Amblydromella kettanehi* (Dosse)
- 10- *Bdellodes* (= *Thoribatella*) *lapidaria* (Kramer)
- 11- *Cheyletus malaccensis* Oud.
- 12- *Bakerdania quadrata* (Ewing)
- 13- *Tarsonemus* sp., ca *aequalis* Livshits et al.
- 14- *Acarus tyrophagoides* (Zak.)
- 15- *Blomia* nr. *freemani* Hughes
- 16- *Histiostoma feroniarum* (Dufour)

INTRODUCTION

The hive debris attract a wide variety of saprophagous mites and

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the foraging workers, also may serve as phoretic hosts to mites. The varied attractive foods, moisture and warmth found inside bee hives seem to be especially favourable for acarids-free-living mite species, commonly known as stored products mites. The adult and developing honey bees themselves serve as food to parasites (Chmielewski, 1991; DeJong *et al.*, 1982; Eickwort, 1988; Morse and Nowogrodzki, 1990; Grobov, 1975). Mites that affect honey bees or are found in bee hives may be divided into three groups: parasites, phoretic mites, and house guests (DeJong *et al.*, 1982; Eickwort, 1988). The number of species of parasitic mites are few, but some are the causes of serious diseases of bees. The primary problem mites are *Acarapis woodi* (R.) an endoparasite, *Varroa jacobsoni* Oud. and *Tropilaelaps clareae* D. & B. that are ectoparasite of honey bees (DeJong *et al.*, 1982; Eickwort, 1988; Morse & Nowogrodzki, 1990). Phoretic mites are flower or leaf-feeding mites that use honey bees for transport from one plant to another and arrive accidentally in a beehive. Among the many house guests are species that feed on old provisions and some species that feed on other mites and Nematodes (Eickwort, 1988). About 160 species of mites have been recorded in association with *Apis mellifera* L. among which some occur principally in stored food, and at the same time in hive debris as scavengers. Some surveys of mites that live in bee hives and on stored pollen have been carried on in different countries that mostly restricted to Europe. Grobov (1975,1980) reported 130 species; Crozier (1989), 19 species; Chmielewski (1991), 34 species; DeJong *et al* (1982), 82 species; Eickwort (1988), 37 species and the other (Baker & Delfinado, 1978; Davis & McRoy, 1987; Delfinado-Baker, 1994; Delfinado-Baker & Baker, 1982, 1987, 1989; Delfinado-Baker *et al.*, 1989; El-Banhawy & Naser, 1984) have reported some mites species from the hives.

MATERIALS AND METHODS

In a survey of honey bee *Apis mellifera* L. hives that conducted from 1990-1993 for mites in Iran, debris samples from 22840 bee hives belonging to 138 apiaries in 17 provinces were collected. Natural hive debris were collected in spring and autumn. Samples stored in separate polyethylene containers and kept at laboratory condition ($25\pm 5^\circ$ C. and $50\pm 5\%$ R.H.) for one month where they were checked daily for the presence of mite. After this time, they were mixed with 75% ethanol. Fine-grained debris was separated from large pieces of other materials with a sieve (mesh 2mm) and examined under a binocular microscope. Mites were picked from the samples kept in Lactophenol and mounted with Hoyer's fluid.

RESULTS

A total of 36 species from 38 genera belong to 30 families were identified from which 16 species were new records from the honey bee hives (Marked with *). Moreover, some undetermined species from 18 genera: *Kleemannia*, *Asca*, *Lasioseius*, *Antennoseius*, *Proctolaelaps*, *Halolaelaps*, *Hirstidnyssus*, *Macocheles*, *Parasitus*, *Eugamasus*, *Amblyseius*, *Varroa*, *Neophyllbibus*, *Tydeus*, *Paralorriya*, *Zygoribatula*, *Rhodacarus*, and *Sennertia*, were collected among from which there are some undetermined species that are probably new to science. Except eight species. *Anystis baccharum* (L.), *Glycyphagus domesticus*, *Carpoglyphus lactis* (L.), *Proctolaelaps pygmaeus* (Muller), *Varroa jacobsoni* Oud., *Rhizoglyphus robini* (Claparede), *Tyrophagus putrescentiae* (Schrank) and *R. echinopus* (F. & R.) which were recorded earlier from the bee hives and stored combs, in the country (Kamali, 1990; Shah-Hossini, and Kamali 1989; Mossadegh and Bahreini, 1994), the rest are new records from the honey bee hives *A. mellifera* in Iran.

LIST OF MITES COLLECTED FROM THE HONEY BEE HIVES

I-MESOSTIGMATA

1- Family AMEROSEIIDAE

Scientific name	Location
<i>Kleemannia</i> (=Sertitympanum) aegyptiacus	
Naser & Abow-Awad	Mazandaran
<i>Kleemannia</i> sp.	Kordestan

2- Family ASCIDAE

<i>Asca</i> sp.	Mazandaran
<i>Antennoseius</i> (=Vitzthumia) sp.	Mazandaran, Azarbaijan
<i>Gamasellodes bicolor</i> (Berlese)	Mazandaran, Kordestan
<i>Lasioseius penicilliger</i> (Berlese)	Mazandaran
<i>L. floridensis</i> -group n. sp.	Zanjan
<i>Proctolaelaps pygmaeus</i> (Muller)	Lorestan, Kordestan
<i>P. scolyti</i> Evans (=ulmi Hirsch)	Kordestan
<i>Proctolaelaps</i> sp.	Kordestan

3- Family CERATUZETIDAE Azarbaijan

4- Family HAEMOGAMASSIDAE

<i>Eulaelaps stabularis</i> (Koch)	Azarbaijan
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5- Family HALOLAE LAPIDAE

<i>Halolaelaps ca saproincisus</i> Hirsch	Azarbaijan
H. sp.	Azarbaijan

6- Family LAELAPIDAE

Hirstidnyssus sp. Mazandaran

7- Family MACROCHELIDAE

Macrocheles muscaedomesticae (Scopoli) Kordestan
M. glaber (Muller) Kordestan, Mazandaran
M. sp. Khuzestan

8- Family MACRONYSSIDAE Khuzestan**9- Family PARASITIDAE**

Parasitus fimetorum (Berlese) Mazandaran
P. sp. Mazandaran
Eugamasus sp. Mazandaran

10- Family PHYTOSEIIDAE

Amblydromella kettanehi (Dosse) Lorestan
Amblyseius barkeri (Hughes) Azarbaijan
A. marginatus Wainstein Mazandaran
A. sp. Lorestan
Neoseiulus sp. nr. swarti Zach. Lorestan

11- Family UROPODIDAE Chahar-Mahal & Bakhtiari**12- Family VARROIDAE**

Varroa jacobsoni Oud. Gererally distributed
V. sp. Azarbaijan
Euvarroa sinhai D. & B. Khuzestan

II- PROSTIMATA**13- Family ANYSTIDAE**

Anystis baccharum (L.) Khuzestan

14- Family BDELLIDAE

Bdellodes (= *Thoribdella*) *lapidaria* Khuzestan
(Kramer)

15- Family CALIGONELLIDAE

Neognathus (= *stigmagnathus*) sp., ca
eupalopus Meyer & Ueckermann Mazandaran

16- Family CAMEROBIIDAE

Neophyllobius sp. Khuzestan

17- Family CHEYLETIDAE

Cheyletus malaccensis Oud. Mazandaran
Ch. eruditus (Schrank) Mazandaran

18- Family PYGMEPHORIDAE

Bakerdania quadrata (Ewing) Kordestan

19- Family TARSONEMIDAE

Tarsonemus sp. Mazandaran, Gilan
Tarsonemus sp., ca *aegualis* Livshits *et al.* Mazandaran

20- Family TYDEIDAE

Tydeus sp. Mazandaran
Paralorriya sp. Mazandaran

III- ASTIGMATA

21- Family ACARIDAE

Acarus nidicolus Griffiths Kordestan

<i>A. siro</i> L.	Mazandaran
<i>A. tyrophagoides</i> (Zak.)	Lorestan, Kordestan Azarbaijan
<i>Blomia</i> nr. <i>freemani</i> Huges	Khuzestan
<i>Tyrolichus</i> sp.	Chahar-Mahal & Bakhtiari
<i>Tyrophagos longior</i> (Gerv.)	Lorestan
<i>T. palmarum</i> oud.	Lorestan
<i>T. Putrescentiae</i> (Schr.)	Lorestan, Mazandaran, Gilan, Azarbaijan, Esfahan Hamedan, Khuzestan, kordestan

22-Family CARPOGLYPHIDAE

<i>Carpoglyphus lactis</i> (L.)	Gilan
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23-Family CHATODACTYLIDAE

<i>Sennertia</i> Sp.	Azarbaijan
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24-Family GLYCYPHAGIDAE

<i>Glycyphagus destructor</i> (Sch.)	Mazandaran
<i>G.domesticus</i> (De Geer)	Mazandaran, Khuzestan,
<i>Lophuronyopus</i> Sp.	Chahar-Mahal & Bakhtiari, Lorestan

25-Family ANOETIDAE (=HISTIOSTOMATIDAE)

<i>Histiostoma feroniarum</i> (Dufour)	
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26-Family SAPROGLYPHIDAE Mazandaran

27-Family RHIZOGLYPHIDAE

<i>Rhizoglyphus robini</i> (De Geer)	Mazandaran
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IV-ORIBATIDA

28-Family ORIBATULIDA

Zygoribatula Sp. Azarbaijan

29-Family GALUMNIDAE

30-Family RHODACARIDAE

Rhodacarus Sp. Azarbaijan

DISCUSSION

From the viewpoint of apiculture, it must be emphasized that all mites should not be treated alike. The majority of species of mites that are known to infest honey bee, are relatively polyphagous species that have secondarily invaded beehives. Thus, the scavenger "guild" of mites that form the bulk of Acari present in a hive, feeding on organic remains and stored provisions, is composed of diverse species that are also common in the stored products of humans. Most of the predators that feed upon these scavengers in the hives are similarly widespread in their habitats and host ranges (Eickworth, 1988). Among the collected specimens, two species were among major external parasites of honey bees, 13 species of stored product mites which were facultative inhabitants of bee hives and many were predatory mites.

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معرفی برخی از کنه‌های کندوهای زنبور عسل

Apis mellifera L. ایران

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از مهرماه ۱۳۶۹ تا مهرماه ۱۳۷۲ بمنظور شناسایی کنه‌های موجود در کندوهای زنبور عسل *Apis mellifera* L. در ایران، ذرات موجود در کف کندوها در دو نوبت طی بهار و پائیز جمع‌آوری گردید. در این بررسی جمعاً از ۲۲۸۴۰ فرزند کندو متعلق به ۱۳۸ زنبورستان در هفده استان کشور نمونه‌برداری شد. نمونه‌هایی از ۳۰ خانواده و ۳۸ جنس تاکنون شناسایی شده که در بین آنها ۱۶ گونه بشرح زیر برای اولین بار در دنیا از کندوهای زنبور عسل گزارش می‌شوند:

- 1- *Klemania aegyptiacus* Naser & Abow-Awad
- 2- *Gamasellodes bicolor* (Berlese)
- 3- *Lasioseius penicilliger* (Berlese)
- 4- *L. floridensis*-group n.sp.
- 5- *Proctolaelaps scolyti* Evans (=ulmi Hirsch)
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- 11- *Cheyletus malaccensis* Oud.
- 12- *Bakerdania quadrata* (Ewing)
- 13- *Tarsonemus* sp., ca *aequalis* Livshits et al.

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14- *Acarus tyrophagoides* (Zak.)

15- *Blomia* nr. *freemani* Hughes

16- *Histiostoma feroniarum* (Dufour)

ضمناً گونه‌های مشخص نشده‌ای از ۱۸ جنس *Lasioseius*, *Kleemania*, *Asca*, *Amblyseius*, *Proctolaelaps*, *Halolaelaps*, *Hirstidnyssus*, *Macrocheles*, *Zygoribatula*, *Varroa*, *Neophyllobius*, *Tydeus*, *Antennoseius*, *Paralorriya*, *Rhodacarus*, *Sennertia*, *Parasitus*, *Eugamasus* جمع‌آوری گردیدند که احتمالاً در بین آنها گونه‌های جدید توصیف نشده‌ای وجود دارند و شناسایی بقیه مستلزم بررسی‌های بیشتری می‌باشد. در بین کنه‌های جمع‌آوری شده دو گونه انگل خارجی زنبوران عسل، ۱۳ گونه از آفات انباری و ریزه‌خوار در کندو و تعداد زیادی از آنها کنه‌های شکارگر می‌باشند. از این نمونه‌ها قبلاً هشت گونه (یک گونه از داخل کندو و دو گونه از روی قابها و پنج گونه از روی بدن زنبوران عسل زنده گرفته شده از داخل کندوها و زنبورهای مرده جمع‌آوری شده در جلو کندوها) از ایران گزارش و بقیه برای اولین بار از ذرات کف کندوهای زنبور عسل در کشور گزارش می‌شوند. اصل مقاله به زبان انگلیسی تهیه شده است.