FRIEDRICH-LOEFFLER-INSTITUT
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Federal Research Institute for Animal Health

Infestation with Tropilaelaps mites

Susceptible Species

Original hosts of *Tropilaelaps* mites are the giant honey bees *Apis dorsata* and *Apis breviligula*, and the cliff honey bee *Apis laboriosa* occurring in Asia. However, in the distribution area of these bees, mites are also found in colonies of the European honey bee *Apis mellifera*, the Eastern honey bee *Apis cerana*, and the dwarf honey bee *Apis florea*. In colonies of the European honey bee, the two species *Tropilaelaps clareae* and *Tropilaelaps mercedesae* cause similar damage as *Varroa destructor*. Damage and death occur in both, brood and adult bees. This weakens the colony, and strong infestation may lead to a complete collapse. *Tropilaelaps* mites represent no human health risk.

Distribution area

Mites of the genus *Tropilaelaps* are distributed across Southeast Asia, from Iran in the West to New Guinea in the Southeast and Korea in the Northeast. In these areas, *Tropilaelaps* mites can also be found on the European honey bee introduced to this area. In Europe, *Tropilaelaps* mites are not yet present, but the risk of introduction is high.

Causative Agent

Four species have been described: *Tropilaelaps clareae*, *Tropilaelaps mercedesae*, *Tropilaelaps koenigerum*, and *Tropilaelaps thaii*. Only *Tropilaelaps clareae* and *Tropilaelaps mercedesae* are known to have successfully adapted to their new host *Apis mellifera*. In contrast to *Varroa destructor*, *Tropilaelaps* mites are unable to survive on adult bees. *Tropilaelaps* mites depend on the availability of brood, as their body structure and mouth parts do not permit ingestion of haemolymph from adult bees.

Transmission

Tropilaelaps mites can be distributed by long-distance trade with bees. Natural transmission between colonies can occur by drifting, robbing or swarming. Furthermore, mites are transmitted by transferring infested brood combs and bees. The most rapid way of transmission is to transfer infested colonies to a new location.

Clinical picture

Clinical symptoms of infestation with *Tropilaelaps* spp. are similar to those of varroosis. At high infestation rates, mites moving across brood combs can be observed. Often the brood pattern is spotty and the cell cappings have small holes. Bees and drones unable to fly which are found on the ground in front of the hive might show a deformed abdomen and/or deformed wings, legs and/or antennae. Often, high mortality rates of the brood occur.

Diagnostics

If the hive has a screen bottom, debris can be examined regularly. To examine the brood, the cell cappings are opened. The mite has four pairs of legs and holds its first

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pair of legs upright resembling antennae. The body appears unsegmented, and is not clearly divided into head, thorax, and abdomen. Adult mites have a light reddish-brown color, nymphs are white.

For further information see Official Collection of Methods (in German language): *Methodensammlung*

Similar clinical pictures

The clinical picture is similar to that of varroosis; however, differentiation between *Varroa* mites and *Tropilaelaps* mites is easy. The fast-running *Tropilaelaps* mites are considerably smaller than the relatively slow-moving *Varroa* mites. While *Varroa destructor* mites are wider than they are long (approx. 2mm x 1mm), the body of *Tropilaelaps* spp. is longer than it is wide (approx. 1mm x 0.5mm).

Control

Infestation with *Tropilaelaps* mites is notifiable. Control is based on the German "Bienenseuchen-Verordnung" (= bee diseases act). First priority is given to the prevention of introduction and spread. All medicinal products for veterinary use licensed for the treatment of varroosis are suitable for control. Preventive measures are healthy, strong bee colonies, close monitoring, and high hygienic standards.

Further information: *National Reference Laboratory for Bee Diseases*

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