

Infestation with the Small Hive Beetle

(Aethina tumida)

Susceptible species

The small hive beetle (*Aethina tumida*) is a pest of honey bees (*Apis mellifera*). In its larval stage the small hive beetle feeds on brood, pollen and honey and can thus damage the bee colony. Bumblebees and stingless bees can serve as alternative hosts; for solitary bees this is still unclear. The beetle does not represent a human health risk.

Distribution area

Originally, the small hive beetle occurs in Africa, south of the Sahara. By worldwide trade with honey bees, the beetle was introduced to America and Australia around the turn of the millenium, where it spread rapidly over large areas. Meanwhile, it has been reported at least once on all continents except the Antarctic. In spite of EU-wide import restrictions, *Aethina tumida* was detected in Calabria, Southern Italy, in September 2014; all attempts to eradicate have been unsuccessful.

Causative agent

The dark-brown to black small hive beetle belongs to the family of sap beetles (Nitidulidae). The adult beetle has about a third of the size of a honey bee (approx. 5mm long, 3mm wide). Fertilized females lay eggs in crevices inside the hive; they may also bite holes into cell cappings and walls to lay their eggs directly into the brood cells. The white to beige larvae emerge after one to three days.

After another ten to fourteen days they reach the so-called wandering stage (approx. 10 mm long), leave the hive, and pupate in the soil. At warm summer temperatures the new generation emerges approx. three to four weeks later, and the adult beetles fly to infest new bee colonies.

Transmission

The small hive beetle is mainly transmitted by trade with bees and long-distance transport of entire bee colonies. However, it can also actively fly to new bee colonies and spread naturally.

Clinical picture

The larvae feed on honey, pollen, and brood, and not only destroy the brood, but also spoil the honey. Lightly infested colonies show tunnels dug through the brood cells by the larvae or „slimy“-looking spots on the combs. In case of strong infestation, fermented, foul-smelling honey will drip from the combs and finally run out of the entrance hole. Massively infested hives are often abandoned by the bees („absconding“); brood combs may be destroyed completely by feeding larvae.

Diagnostics

The safest diagnostic method is visual inspection of hives for adult beetles, larvae or damages caused by them. Different traps for detection of *Aethina tumida* have been

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developed. Oil traps inserted into the bee space between two frame top-bars are easy to handle. Characteristic features of adult beetles are the short elytra and the “club-shaped” antennae. Larvae have three pairs of prolegs, and characteristic spines on each body segment down the length of their back.

More detailed information see Official Collection of Methods (in German language): [Methodensammlung](#)

Similar clinical pictures

The adult beetle can be mistaken for closely related sap beetle species, which also may occur in bee colonies. At first sight, the larvae of the small hive beetle may be mistaken for larvae of the wax moth. However, on closer examination of specific characteristics differentiation is easy.

Control

Infestation with the small hive beetle is notifiable; every suspect case must be reported to the competent authority immediately. Control is based on the German “Bienenseuchen-Verordnung” (= bee diseases act). First priority is given to the prevention of introduction and spread. Currently, no suitable medicinal product for veterinary use is licensed in Germany for control of the small hive beetle. Preventive measures are close monitoring, high hygienic standards, and healthy, strong bee colonies.

Further information: [National Reference Laboratory for Bee Diseases](#)

Friedrich -Loeffler-Institut, Federal Research Institute for Animal Health
Südufer 10, D-17493 Greifswald - Insel Riems, [FLI-Website](#)