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Nesting of wasps

Wasps are members of the order Hymenoptera and belong to the sub-order Apocrita (Aculeata) of Hymenoptera, which includes bees as well. The scientific name of the order is derived from the Greek hymen (membrane) and pteron (wing). They come in many different types and sizes. Insects known as wasps include sawflies, parasitic wasps and stinging wasps, which may cause nuisance pest problems to human beings. There are about 75,000 species of wasps recorded globally, most of them are parasitic. We have at least 30 commonly found species locally.

Wasps complete their development in life cycle with four developmental stages at which their appearances are very different. The larvae are usually legless with well-developed heads. Wasps can be classified according to their behaviour as social and parasitic wasps.

Social wasps live in a considerable number together with well defined casts. They usually build papery nests as their shelter and nursery ground housing the members of the colony. For example, the vespoid wasps like yellow jackets, hornets, and paper wasps mix materials like "paper" fibers collected from dry wood and tree bark with saliva to

build or fix their nests. Some of the nests are exposed with limited nest size and relatively small colony size. Some of the nests are, however, enclosed by an outer covering which forms a shelter for protecting the whole colony. In every nest of this type, there are one or more combs, each with densely packed arrays of cells. There are usually more than one entrance when the enclosed nests reach considerable size. However, the nests will disintegrate in winter when the wasp aged and died.



Vespa affinis (大褐胡蜂), a commonly found local species

Parasitic wasps are mostly free-living. They have diverse nesting habits and do not build very big nests. Some species of parasitic wasps build cells of clay attached to twigs of trees and some other parasitic wasp species construct mud cells in sheltered places. For another species (digger wasps), they burrow into the soil or in decaying wood. After parasitic wasps lay their eggs on host animals, usually other insects like cockroaches and caterpillars, they fly off in search of food sources for themselves or other hosts for their larvae. The eggs are left in the hosts for development and hatching on their own.

Information on prevention of wasp attack and infestation can be obtained from another page of our website. A booklet on wasps in Hong Kong will be issued by our department to give an introduction to both social and parasitic wasp species found locally. The booklet will cover 10 families of wasps, including Vespidae, Scoliidæ and Sphecidae.



The nest of parasitic wasp



An enclosed nest of vespoid wasp



An unenclosed nest of vespoid wasp

Bedbugs: A resurgent pest problem

Bedbugs are small wingless insects which were once a major domestic pest problem worldwide. Their prevalence declined with the widespread use of DDT from the mid 20th century. However, resurgence of bedbug infestation is recently recorded worldwide. It is believed that the increase in international travel and the development of pesticide resistance are major causes for the global resurgence of bedbugs. Despite bedbugs not generally considered to be disease vectors, humans bitten by them may suffer from sleepless nights and dermatological discomfort like itching and inflammation. In addition, scratching of bitten areas may cause secondary infection. Heavy infestation of bedbugs could also bring economic loss to poultry farmers by lowering egg production of affected poultry.

There are two species of bedbugs causing nuisance to humans, namely the common bedbug, *Cimex lectularius*, and the tropical bedbug, *Cimex hemipterus*. The former is distributed worldwide while the latter is mainly found in tropical regions. Both species have been recorded in Hong Kong.

Biology and Behaviour

The life cycle of bedbugs consists of three stages: the eggs, nymphs and adults. The nymphs are juveniles which resemble miniature adults in appearance. The nymphs complete their development in about 6–8 weeks. Adults measure about 5mm in size and their average lifespan usually lasts 6–12 months. Females lay 2–3 eggs per day and up to 500 throughout their lifetime.

The mouthparts of bedbugs are specialized for piercing skins for both juveniles and adults to feed on blood for nutrition and development. Their flattened and oval-shaped body enables them to hide in a variety of dark and narrow spaces. As the name implies, bedbugs often live close to places where people sleep, such as under mattresses, carpets and baseboards; within bed frames; behind wallpaper; and in cracks and crevices of walls and furniture. They are nocturnal creatures which feed at night by responding to the warmth and carbon dioxide emitted by the hosts, and stay at the refuges during the daytime. They also feed on other warm-blooded animals (e.g. rodents and birds) apart from humans, and can survive for long periods without feeding.

Prevention and Control

Bedbug infestation can be detected by the presence of egg shells, nymphal skin-casts, and spots of dark or rusty red excreta around their hiding places. Moreover, the presence of distinctive sickly smell characterizes heavy infestation. Successful control of bedbugs requires correct identification of their hiding places and then focal residual insecticide treatments accompanied by elimination or blockage of the hiding places. Regular cleaning and vacuuming of premises, thorough laundering of bedding and clothing, and proper environmental sanitation management are essential for effective prevention of bedbug infestation. Other preventive measures include regular inspection of bedding and clothing, maintenance of non-humid domestic environments, avoidance of use of second-hand furniture, prompt replacement of loosened wallpapers and sealing of cracks and crevices. Inspection should also be carried out for adjoining flats as cross-compartmental infestation is possible.

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Cimex hemipterus

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