Pest Control Newsletter

Published by the
Pest Control Advisory Section

Issue No. 4 October 2006

INSIDE THIS ISSUE

Insect diapause with mosquito as example

Environmental conditions differ greatly from one place to another. The conditions may also fluctuate over time in any particular place. Thus for a given insect, a given habitat at one time may be adequately provided with all its living requirements (such as shelter, food, favourable temperature and moisture) and at another time be entirely unsuitable.

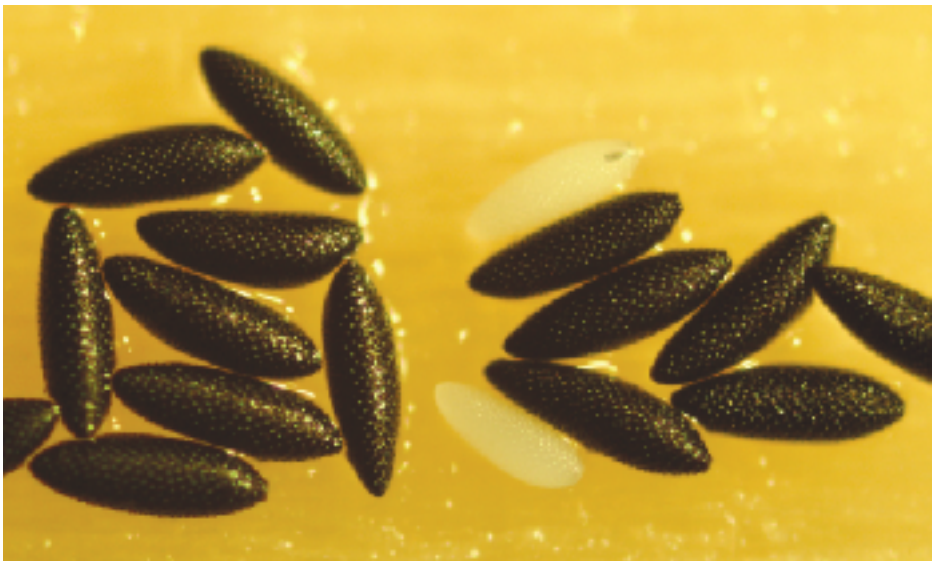
To overcome adverse seasonal changes, many insects exhibit migratory or dormancy behaviours. Diapause is one type of dormancy that characteristically occurs as a means for overwintering. It may be considered as an anticipatory response to environmental cues resulting in a hormonally mediated state of low metabolic activity with reduced morphogenesis, increased resistance to environmental extremes, and altered or reduced behavioural activity. The insect enters into a condition similar to sleeping. It stops growing, eating, flying, mating, laying eggs etc.

Diapause may occur at any of the life stages depending on the insect species, but tends to occur in one species specific stage of the life cycle. Some mosquito species survive the winter as adults such as *Culex pipiens* and *Anopheles quadrimaculatus*, some as eggs such as *Aedes albopictus* and *Ochlerotatus abserratus*, and some as larvae such as *Culiseta melanura* and *Wyeomyia smithii*.

The mosquito *Aedes albopictus* enters diapause in egg stage (please see picture). The eggs of *Aedes albopictus* are laid in tree holes, bamboo stumps, containers and discarded tires etc. The eggs laid in these water containing bodies in late autumn or early winter remain there for overwintering until spring when environmental conditions again become favourable for hatching.

The mosquito, *Culex pipiens* enters diapause in adult stage. Only female *Culex pipiens* enter diapause and most are inseminated prior to entering the overwintering sites such as caves and culverts. They remain there until spring when environmental conditions again become favourable for growth and development.

Although we normally do not experience mosquito problem in the cold months, the control and prevention of this insect should not be slackened in the winter. We should maintain our Weekly Mosquito Inspection Programme with particular emphasis on elimination of eggs (please refer to our webpage for anti-mosquito measures (http://www.fehd.gov.hk/safefood/dengue_fever/index.html)). The insect may still be around. It is just hiding near us!



Picture: *Aedes albopictus* eggs

More informaiton on pest prevention and control can be obtained from other pages of our website

Differences Between Ants and Termites

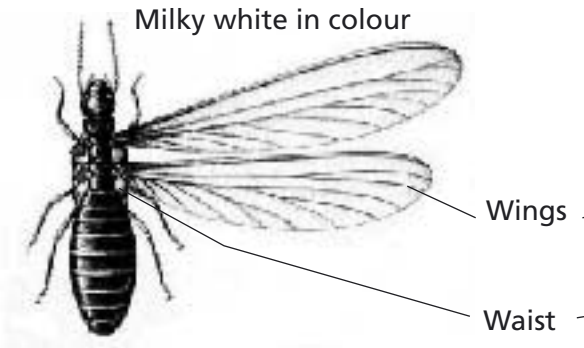
Termite is always mistakenly considered as a kind of ant which is white in colour. Although both termite and ant are insects living in colonies, they are not close relatives. In fact, ant is a close relative of bees and wasps instead. Termite is not a kind of ant. The body of termite is milky white in colour and looks like that of an ant. However, its appearance is different from ant when we look closer at it. Termite and ant can easily be distinguished by their antennae and waists. Termites have straight antennae and broad waist while ants have elbowed antennae and constricted waist.

Both ant and termite have no public health importance. Ant feeds on a variety of food and is usually regarded as a nuisance pest. Ant lives in cracks and crevices both indoors and outdoors. Filling up cracks and crevices indoors, maintaining the premises clean and tidy, as well as avoiding accumulation of disused articles are measures for discouraging ant activities in the premises.

Termite lives on wood but ant usually cannot. Termite is considered as an economic pest because it damages wooden articles and wooden parts of a building. However, it is an important scavenger in the forest. It brings the nutrients locked up in trees back to the soil by breaking down the wood of dead trees. We should not aim at eradicating the insect. What we should do is to protect our properties from the attack of the insect. Repairing leaking water pipes and drains as well as replacing rotten wood in our premises are important in termite prevention measures.

A simple comparison of termite and ant is made in the table below:

Comparison of termites and ants

	Termites	**Ants**
Classification	Order: Isoptera	Hymenoptera
Life cycle	Incomplete metamorphosis (egg⇛nymph⇛adult)	Complete metamorphosis (egg⇛larva⇛pupa⇛adult)
Wings	All four wings are nearly the same	Front pair of wings is larger than the hind wings
Antennae	Straight antennae and all the segments are beadlike 	Elbowed antennae and have the first segment elongated into a scape 
Eyes	absent	present
Waist	A broad-waisted appearance	A constricted-waisted appearance
Adult	Milky white in colour 	Yellow, black, brown or red in colour 
Feeding	Timber or foods rich in cellulose	A wide variety of food items
Habitat	Wood and soil	Cracks and crevices indoors and outdoors