Pest Control Newsletter

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Ticks

Dorsal view of Rhipicephalus sanguineus Adult (Pest Control Advisory Section, FEHD)

Ticks are notorious for causing nuisance to us and their ability to transmit diseases to us and our pets. Unlike insects, ticks do not have distinct body parts and have no antennae. Their head, thorax and abdomen fuse together and form an oval shaped body. The tick's body consists of an idiosoma (body) and a capitulum (false head). Along with mites, ticks are classified under subclass Acari. They have four developmental stages: egg, larva, nymph and adult. Nymphs have four pairs of legs and resemble adults but they are different in sizes. Larvae, like fully grown insects, have only three pairs of legs. Both sexes of ticks are bloodsucking parasites of vertebrates, mainly mammals and birds. Blood meals are necessary for ticks to grow in each developmental stage and for females to lay eggs. The size of ticks prior to feeding ranges from two to twelve millimeters. Ticks can have more than one host in a life cycle depending on species, which means ticks can feed on a host throughout its life or on two or three hosts between different life stages. However, they can also survive a long period of starvation before finding a host.

Different life stages of ticks, Haemaphysalis species. From the left, female, male, larva. (Pest Control Advisory Section, FEHD)

There are two main families of ticks – the hard (Ixodidae) and soft (Argasidae) ticks. Hard ticks are of more public health and economic importance since they are the agents transmitting diseases that are commonly found within human populations, such as babesiosis, Lyme disease, Q fever and spotted fever. Hard ticks can be distinguished by their visible capitulum from dorsum. A male hard tick has a scutum (shield) which covers the dorsal side of its idiosoma whereas the scutum of a female covers only the anterior region of its idiosoma. Hard ticks are more active by day and usually wait on the tips of vegetation to ambush hosts. Once they attach to a host, they tend to feed and engorge for an extended period of time on their hosts. For example, Rhipicephalus sanguineus, commonly known as brown dog tick, is a typical three-host tick and parasitize mainly on dogs. It is also responsible for transmitting Q fever and spotted fever in Hong Kong.

Soft ticks often live in nests, burrows or shelters of their hosts. They have less developed hypostome and tend to feed quickly and repeatedly on their hosts. They look different from hard ticks by the lack of scutum and invisible capitulum from dorsum. Since soft ticks spend most of their life time with their host, humans have little chance to become their accidental host unless they come into close contact with their natural hosts.

Transmission of tick-borne diseases is usually through the blood feeding process or the crushing of infective ticks or their feces into abrasions or eyes. To protect yourself from ticks' bites, you may do the following:

- Wear long-sleeved clothes and long trousers while walking into shrubs or bushes
- Wear boots and long trousers and tuck the trousers into socks
- Apply insect repellents on clothes and exposed body parts
- Examine the body of the accompanying pets after hiking or brushing long grasses for ticks
- Keep your pets and their sleeping areas clean and tidy.

W. S. TSANG, Assistant Pest Control Officer

Mosquito Coil

The rainy season is approaching. People should step up their personal protective measures against mosquitoes. One of the popular anti-mosquito measures is the use of mosquito coils. Mosquito coils are among the most popularly and widely used insecticidal vaporizers because they are easy to use, effective and inexpensive. In the past, plants or wood containing repellent or insecticidal substance were burnt to protect several people against mosquitoes at a time. Modern devices include mosquito coils, vaporizing mats and electric liquid vaporizers. Mosquito coils protect us from mosquitoes by deterring them from entering a room as well as paralyzing or even killing them.

Mosquito Coil Ingredient

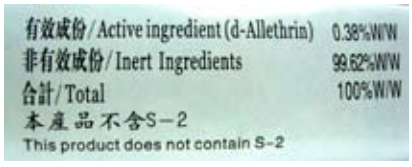
Typical mosquito coils are composed of a mixture of active ingredients, usually small amounts of pyrethrins or synthetic pyrethroids which account for less than 1% of the coil mass, and a number of inert ingredients including the combustible filling materials such as sawdust which makes the coil smolder well, binder such as starch gel, and synergist such as piperonyl butoxide (PBO) which enhances the insecticidal properties of the active ingredients. Other additives may include

(a) combustion regulator (such as potassium nitrate),

(b) fungicide (such as sodium dehydroacetate for prolonging the shelf-life of the coil),

(c) dye which gives the desirable color of the coil, and

(d) fragrance which makes the smell of the smoke of the coil more acceptable.



Mosquito Coil Application

Mosquito coil is usually effective when used in indoor areas or places with limited ventilation like scrubby areas with dense vegetation. According to the World Health Organization, one coil is sufficient for a room of space about 35m3. Several coils should be used at different points for a larger space. However, people should read the product label of the coils and use them in accordance with the instructions and check the expiry date before purchase.

When coils are used indoors, people should remember to maintain good ventilation (with open windows) as the smoke may cause irritation to the eyes and respiratory tract. Great care should be taken in using coils in sensitive areas where children, pregnant women, the elderly or the sick live, work or are cared for. An alternative anti-mosquito measure, such as use of mosquito nets or application of epidermal mosquito repellent, should be considered in these areas. If coils are used outdoors, people should make sure that they are downwind of the coils for protection.

After lighting up the free end of a mosquito coil, it smolders at a steady rate for 6-8 hours and releases insecticide into the air steadily. The insecticidal effect can only be achieved after a certain concentration of the insecticide has accumulated in the space. The time required depends on the type and concentration of the active ingredients, the size of the room and the wind speed. To improve safety and efficacy, the lit coils should be placed in containers or holders provided by the manufacturer. A holder may prolong the burning time of a coil by up to 20% and it may prevent flammable objects from making contact with the coil.

As safety precautions, a mosquito coil should be installed at a stable and heat resistant place, and kept out of reach of children, and away from articles to avoid becoming a fire hazard. After handling a mosquito coil, people should wash their hands with soap and water. Moreover, mosquito coils should be stored away from food and water, in a cool and dry place and out of reach of children. If poisoning is suspected, people should stop exposure to the mosquito coils and consult a physician as soon as possible.

Although using mosquito coils is effective and inexpensive, the most desirable anti-mosquito measure is to eliminate all stagnant water so as to prevent the breeding of mosquitoes.

S. M. YIN, Pest Control Officer