

Termites as a Household Pest

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Introduction

Termites are small greyish white soft-bodied insects, with moniliform antennae and biting and chewing types of mouth parts. Compound eyes are present in alate forms and absent in apterous forms. Wings are generally present only in sexual mature form during swarming season, wings are further shed during swarming and remanent or stump left behind is referred as scale. External genital organs are lacking in both the sexes. They are polymorphic, eusocial insects living in colonies. Termites are an important household pest causing considerable damage to furniture in houses. In this article, we will discuss about termites caste system, food digestion behavior, their classification and management. All the above-mentioned topics are important to understand for better regulation of pests.

Caste system in termite colonies

Each group of individuals that perform the same function is called caste. There are four distinct caste in termite colony viz., king, queen, workers and soldiers. King generally fertilizes queen and helps the queen in the construction of nuptial chamber. It also helps the queen in rearing of first brood. There is a single queen in colony which after fertilization attains enormous proportions. The abdomen becomes bloated due to stretching of intersegment membranes to accommodate the well-developed ovaries and fat bodies. This obesity is known as physogastry. Dominating caste in colony is workers. Mandibles and salivary glands are well developed in these. They excavate earth and build earthen mounds mainly with soil and saliva, repair the termitaria, go out for foraging, cultivate fungus garden, feed the king, queen and soldiers. They care for eggs and young ones. They are mainly responsible for damage caused to timber and crops. Another important caste is soldiers, which are further classified into two types viz., Mandibulate and Nasute. They defend the

colony. In mandibulate soldiers head is large, well sclerotized with well-developed mandibles whereas in nasuate soldiers head is drawn into a nozzle shaped projection at the tip of which opens frontal gland. Frontal gland is large projecting posteriorly into the abdomen and its glandular secretions are used during defense.

Food digestion in termites

As termites damage in houses mostly occur by termite feeding on them with its biting and chewing mouth parts. So to understand its damage in better way we need to study about wood digestion by termites. Cellulose is the organic food available for termites. Lower termites depend on flagellate protozoans. In higher termites, fungus and bacteria helps in digestion of cellulose. They develop fungal gardens called as termitomycetes. Fungi are cultivated by worker on special substrate derived from the faeces. Fungus produces conidia and conidiophores. These fruiting bodies are important source of vitamins and organic nitrogen. Fungus produces ligninase which acts on lignin and produces cellulose. This cellulose is acted upon by cellulase produced by bacteria found in the gut. Another important feeding behaviour observed in termite colony is trophallaxis. It can be defined as mutual exchange of alimentary fluid. It further occurs by two means. Oral trophallaxis (mouth to mouth feeding and the food shared is called atomodeal food) and Anal trophallaxis (anus to mouth feeding and the shared food is called proctodeal food)

Classification of termites into families:

1. Mastotermitidae
2. Kalotermitidae
3. Hodotermitidae
4. Termopsidae
5. Rhinotermitidae
6. Serritermitidae
7. Temitidae

The first six families are collectively referred as “lower termites” and termitidae are referred as higher termites. Out of these 2 families *i.e.* Rhinotermitidae (Subterranean termites) and Kalotermitidae (Drywood termites) are major destroyer of wood and wood materials in household

Subterranean termites

These termites build distinctive tunnels, often referred to as “mud tubes”, to reach food sources and protect themselves from open air, they enter in house from beneath through the tunnels they have formed. They can cause critical damage to a building structure, sometimes causing a total collapse. The hard saw-toothed jaws of termites work like shears and are able to bite off extremely small fragments of wood; one piece at a time. Their presence can be deduced by presence of mud tubes on the exterior of home. Mud tubes looks like tunnels made of wood and soil. Other sign includes soft wood in the home that sounds hollow when tapped, darkening or blistering of wood structures, uneven or bubbling paint and small piles of feces that resembles sawdust near a termite nest. Discarded wings near doors or on window indicate that swarmer have entered and infested the home

How to get rid of subterranean termites

To get rid of subterranean termites one should avoid water accumulation near the home’s foundation, as these pests are attracted to moisture. One can divert water away with properly functioning downspouts, gutters and splash blocks. Reduce humidity in crawl spaces with proper ventilation. Never bury wood scraps or wood lumber in the yard. Seal cracks and services in the homes foundation to keep termites out. Eliminate wood contact with soil, and maintain a one-inch gap between the soil and wood portions of the building. Schedule annual professional termite inspections for your home. If you suspect a termite infestation on your property, contact a licensed pest control professional to determine extent of problem and to develop appropriate treatment plan. Application of liquid insecticides in sub slab soil is also an alternative and utilization of pyrethroids (permethrin, cypermethrin and bifenthrin) repel termites from treated barriers.

Drywood termites

It is most common type of termite found on wooden furniture and form colonies in a small piece of wood. Unlike subterranean termites, they do not have worker caste as the work is done by immature termites before they reach adulthood. Drywood termites can be transported to new locations via an infested piece of furniture, a picture frame, etc. Majority of drywood termites pests belong to genus *Cryptotermesspp*. Followed by *Incisitermes spp*.

How to get rid of drywood termites

It can be avoided by making sure that firewood and scrap wood is stored at least 20 feet away from home. As dry wood termites form new colonies by gaining access to wood

through small holes, hence sealing of all cracks and cervices in structure is important. Homeowners should also routinely inspect the property for signs of drywood termites, paying special attention to window, doorframes and attic.

Chemicals recommended by Central Insecticide Board& Registration Committee in termites management

1. Common name :- Bifenthrin 2.5% EC

Brand name: - BAIFLEX 2.5 % EC

Dosage :- Ultra small (1 ml or gm to 50 ml or gm)

Small (51 ml or gm to 250 ml or gm)

Purpose :- Recommended for control of termites in buildings and wood borer in plywood, veneer and wood. Do not enter treated area for 48 hours until sprays have dried

2. Chlorpyriphos 2% EC :- Protect wood against termites and borers

Conclusion

Termites are important household pest causing a lot of damage. Worker is the most important caste damaging household things made from wood. Termites utilize a variety of symbionts to break down and digest the resistible cellulose of woods. Out of all termite families, families having subterranean and drywood termites are most important when it comes to household pests. Early detection and the use of Bifenthrin 2.5% EC and Chlorpyriphos 2% EC could help control them.