

URBAN COCKROACHES

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INTRODUCTION

The cockroaches are the most common insects to human conviviality. However, from around 4,000 species described, the majority is wild and less of 1% lives with human environment, due to availability of food, water and shelter. These species are called urban cockroaches and they live inside and around building, as a grease trap, sewerage system, moist and dark places.

The cockroaches live in any environment independently of ethnic group or social classes. Even the buildings are in good conditions, this situation do not avoid infestations that will be limited by unavailability of food and shelter.

Nowadays are described more than 600 species in Brazil. The species *Blattella germanica* e *Periplaneta americana* show an general occurrence, since Rio Grande do Sul until Manaus (in Amazon region). These insects have a high capability to adapt in any conditions. The cockroaches are mechanic vectors of diseases because they carry pathogens when walk on garbage, sewerage system or another contaminated places.

BIOLOGY

They have an oval flattened body. The form and size vary according to species. The size can vary from millimeters to 10 centimeters, with black, brown and grey color, but there are colors species.

The head is short and antenna is located between the eyes, with a filiform shape with the double of body size. They have an important role in the insect survivor used to sense of direction, vibration caption in the air, identify food or pheromones. The cockroaches are chewing insects and they feed with paper, honey, bread, flesh, potato, fat, animal food and books. Some feed wood (cellulose) that are digested by microorganism as happens with termites. The legs are ambulatory and the cockroaches are exceptional walkers. The laying of eggs of females is done inside a genital case located in the end of their abdomen called ootheca.

Blattella germanica: They are small insects and the size to vary from 12 to 16 mm length, with yellow color. They prefer moist environment and temperatures above 21° C, and are easily find in kitchens and store-room mainly in cupboard, balconies, sink and a preferential place is wood shelf. The preferential food is fat, sugar, fermented food and starch.

Periplaneta americana: The biggest of all species with urban importance, reaching to 3.8 cm of length with dark brown color. They can live more than 15 months and fly in short distance. They prefer places that are hot and moist as a sewerage system, grease trap,

strainers, bathroom, clothes baskets, basement or another place where the food are prepared and stored.

It is important to report that the cockroaches have an alimentary preferential for organic material in decomposition and food that contains sugar and starch. They can damage papers, tissues and others materials.

BEHAVIOR

The cockroaches have nocturnal habit and are more actives at night when feed, fly, meet to copulation, laying eggs, dispersion, etc. During the day they hide to protect themselves of light and human presence. Some special situations contribute to appear during the day as such a super population or unavailability of food and water. They are not social insects as bees, termites and ants, but cockroaches are gregarious. Table 1 shows the preferred shelters of *B. germanica* and *P. americana*.

Table 1. Preferred shelters.

<i>Periplaneta americana</i>	<i>Blattella germanica</i>
Grease trap and sewerage system	Kitchen
Water tank	Food and package storage
Electrical and phone control panel	Oven, stove, refrigerator, coif, electric motor
Underground galleries	Electrical conduit
Cistern	Sink, balconies, wainscot
Service areas	Equipments and objects (inside)
Water closet and dressing-room	Water closet and dressing-room
Basement, attic, covering	Wall cracks
Garden	Cabinets and cupboards
External areas (where there are accumulated materials)	Divisors

REPRODUCTION AND GROWTH

The cockroaches are insects that show gradual metamorphosis in three periods: eggs, nymph and adult.

The female has a protector capsule to the eggs (ootheca) in a closed bag form. The eggs numbers vary according to the specie (4 to 50 eggs). The ootheca is placed in a safety space near to food source, after two days of its formation. Only *B. germanica* carry the ootheca around 24-48 hours before the eggs eclosion. The young forms (nymphs) are similar with adults, but they have not wings and are sexual immature. The development circle of cockroaches (since eggs to adult form) depends of factories as species, temperature, humidity, food available.

DAMAGES

Due to the size and type of buccal apparatus *P. americana* cause major damages on patrimony documents, screen, tissue and vegetal fibers. The objects become imbued with its characteristic smell. In despite of the specie *B. germanica* to be smaller, this insect cause damages analogous to *P. americana*. High infestation of *B. germanica* cause spots in pieces and objects.

CONTROL AND PREVENT METHODS

A-) Eliminate the local factories that promote the development of cockroaches.

- To discard useless materials.
- To close cracks and strainers.
- Keep good conditions to storage.
- Good conservation of equipment, furniture and installations.
- To remove daily organic residues.
- To eliminate water leakages.
- To inspect the entry of materials
- To keep the places clean
- To clean and keep closed grease traps and sewerage system

B-) Mechanic control

- To utilize a vacuum cleaner to remove the cockroaches.
- To utilize adhesive trap to verify the level of infestation and reduce the population.

C-) Chemical Control

- Pulverization: to apply insecticide in a liquid form in the internal and external perimeter areas of building, grease traps and other shelters.

- To apply insecticide in a gel form.

D-) Control after treatment

- To utilize adhesive traps.

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