

Termite as Silent Pest of Buildings and Things Inside

by

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Abstract

Nowadays, termites attack happened in many buildings, though there were only few of wooden construction materials. This study was objected to identify termites species live the building and condition of building area satisfied for termites. The study was conducted in a building of three storeys used for office and teaching room. The construction of the building was made of concrete with masonry wall and steel truss for roof construction.

The result of the study indicated that *Coptotermes* sp. attack bookshelves and papers on it. The bookshelves were located in a dry and sunny area with glass. The difference between the area and another was that the shelves and papers attacked were belonging to a man who in the past year studies in another city. The colony of the termites didn't attack door and its frame, which made of wood.

Key words: termites, *Coptotermes* sp, bookshelf.

Introduction

In Indonesia as a tropical country, the damage by termites are a common condition. Roonwal and Maiti recorded the presence of about 200 termite species in Indonesia. Of these, 30 species known to inhabit in Jawa (Primanda, 2003). As an agent in biodeterioration of wood, termites use woods for habitation and food. For both purpose, they chewed wood into small fragment. Certainly, they caused wood damage.

As wood consumers, termites live not only in forest or garden where many wooden trees lives, but also on buildings since some of them eat both live wood and dead wood, some species of termites live in buildings. Besides, there are still many species of termites that are not interested to eat dead wood used in made structures.

As construction of many buildings still continued, it decreased the land area for trees. Clearing forest for crops and buildings often leaves rotting vegetation and wood., which provide an initial source of food for termites in newly established colonies. However termites must eventually search for food and then can become a pest for human life. It not imposible, termite colonies would become accustomed to live in another circumstance to struggle and survive their life. They would live in buildings and consumed wood and wood based materials.

Materials and methods

The study was conducted in a building of three storeys used for office and teaching room. The

construction of the building was made of concrete with masonry wall and steel truss for roof construction. The first floor was used for office of archival matter and CNC (Computerized Numeric Control) workshop; the second floor used for library, meeting room, office and rooms for lecturers; and the third floor used for Computer Laboratory, drawing studio and classroom.

The study established by searching termites colonies lived in the buildings. Then termites were identified to know the species. After all, the nest of the colony were tested for the water content, density and materials of the nest.

Results and discussion

The first colony found on the first floor in the office of archival matter, which located near the toilet. This area were rather shady since little sunray could reach it. They eat archive paper there. This site was suitable for termites since there were damp shaded. The second and the bigger colony was found on bookshelves on the second floor. The area was not in the library or near the toilet, but in the dry area with glass window filled of sunray. The difference between the area and another was that the shelves and papers attacked were belonging to a man who in the past year studies in another city. Two shelves was made of particle board and the another made of plywood. The colony of the termites didn't attack door and its frame, which made of wood.

Looking the front side of bookshelves, termites attack couldn't be seen. Both, the shelves and the papers on it seems to be all right (Figure 1), but when we observed carefully, several soil like flake could be notice around them.



Figure1. Front side of book shelves and paper attack by termites.

Termites consumed wood from a hidden area, which difficult to be recognized. They placed their nest between the back of the shelves and the wall. The nest (Figure 2a) was compact and hard to became dissolved in water. Immersing the nest in hot water for several times, it was found that the nest was consist majorly by paper (Figure 2b).

They chewed paper form the bottom (Figure 3a) and made holes in the ply wood (Figure 3b). When study conducted though many holes made in upper surface, the lower surface was clean (Figure 3c).

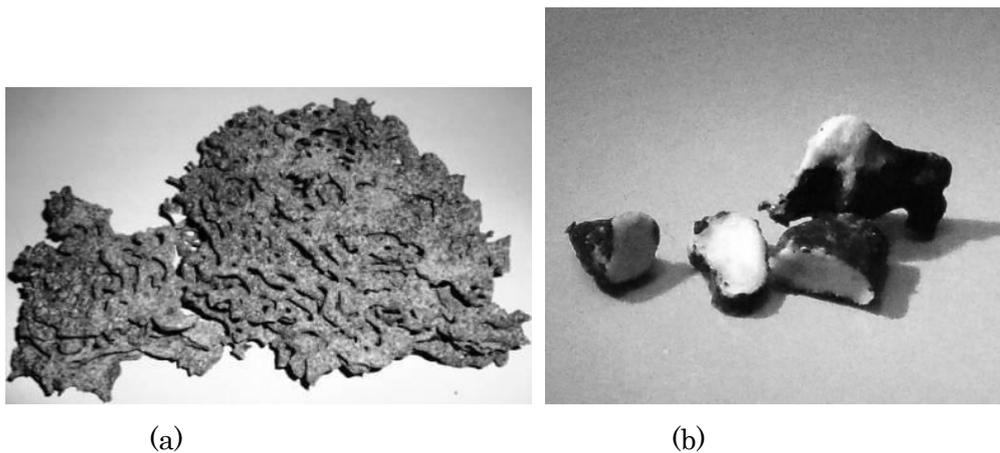


Figure 2. Termite nest

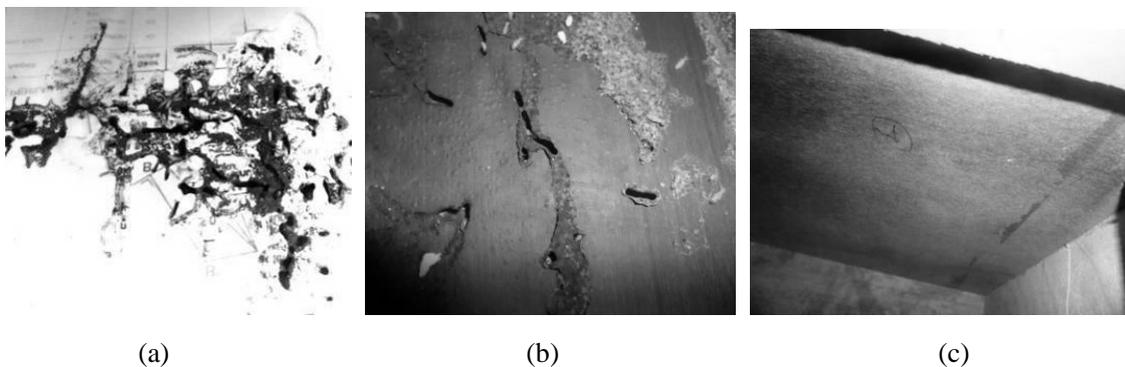


Figure 3. Termite attack to bookshelves made of plywood

According Rilatupa, 2009, macrotermes and coptotermes were two of several species that attack buildings, especially coptotermes which could reach the top level of a high rise building. It told that the termites like to attack a silent area, where they could attack wood or wooden base materials with minimal vibration from human activities. These statement was appropriate to the condition above, where the colony attacked the shelves and paper, which rarely used. Though, temperature and air humidity are a main factor affecting termites in buildings (Pears, 1997), but we have to pay attention to vibration influence.

The problems of termites attack would important in Indonesia, since there were a regulation of buildings treatment to avoid termites attack. Moreover as a tropical country, temperature and air humidity in Indonesia suitable for many species of termites using wood for their food, such as coptotermes, which their feeding rate is greater than that of the other main subterranean pest.

Conclusions

Termites, especially coptotermes were a harmful pest, since they ate wood and other wooden based materials. In buildings, they eat not only wood in building construction, but also things inside. They could damage construction and archives at the same time, without anyone known. Usually people knew after serious damage. If it happened in construction, buildings or its parts could be collapse and it's not impossible someone could be a victim. To avoid dangerous, treatment and

building maintenance must be done, cause termite is a silent pest for both building and thing inside.

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