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Independent Fodder And Tropholaxic Characte Ristics Of Different Ages

Sadbarkhon Abdukarimovna Mavlanova
Candidate Of Biological Sciences, Associate Professor, Namangan State University, Uzbekistan

Gavkharoy Ismailovna Tadjibaeva
Teacher, Namangan State University, Uzbekistan

ABSTRACT

The article examined the independent feeding and tropholaxis properties of termites in different castes and ages. Working termites have been reported to be the most active in storing food and transporting food to other strata termites.

KEYWORDS

Termites, isolation, red neutral dye, nymphs, food chain, termite trophism, soldier's termite vomit, feed preference.

INTRODUCTION

It is known that today termites are the main pest of residential and administrative devices in the world. Today, the list of materials damaged by termites is growing. These include, in addition to wood, railway sleepers, telegraph poles, paper, cardboard, fabric, leather, wool, gray, plastic and insulation, and other construction and household materials. It was found that while termites caused more than $ 3 billion in damage to board devices in the United States each year in 1997 (Lewis, 1997), in 2002 the damage was estimated at $ 11 billion (Su 2002). More than $ 2 million is spent annually on antimicrobial measures in the United States as the Coptotermes genus causes more than $ 60 million in damage to buildings and structures in the Hawaiian Islands (Delate, Grase, 1995). In Malaysia, 75% of the money spent on repairs to government buildings is spent on damage caused by termites. The concern of the population and the administration today is an indication of how important termites are to the national economy. The increase in termite attacks on

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buildings, city and district facilities in recent years has created unrest in Central Asia, as well as in Uzbekistan. In 1992, about 3.2 million private houses were damaged in the country, but now this figure has increased sixfold. The sharp increase in termites is due to the development and irrigation of dry lands, the destruction of ancient cemeteries and the use of wood damaged by termites to make household utensils, the biological properties of large numbers of offspring, as well as the population's lack of knowledge about termites. Due to the latent, high viability, reproductive activity of termites, the fight against termites is ineffective, according to the world's leading experts (Su et al. 1997). The main methods of combating termites were in many cases the basis for the extensive use of chemical factors. The use of these chemicals is currently banned due to their negative impact on the environment and human health. All over the world, including in our Republic, there is a need to develop effective methods to control the number of termites. This method needs to be targeted at the pest population. In order to develop new opportunities to combat termites, we need to have a clear understanding of their life characteristics, as well as a clear understanding of the interspecific relationships, food, and environmental impacts that divide their workforce. Once such data is available, the possibility of developing and applying adequate, effective, alternative methods of controlling the number of termites expands.

Nowadays, in order to reduce the viability of termites, it is necessary to study their functional classification, along with their biological and ecological properties. Among the various functional systems, the study of the digestive and digestive systems in termites is particularly important. This is because the flowering and shortening of any species and population depends primarily on the supply of nutrients (Ugolev, 1985). Only if we know the feeding mechanisms inherent in termites can we produce effective, purposeful, environmentally friendly control measures aimed at reducing their numbers.

Purpose: To study the nutritional and digestive properties of Turkestan termite.

To achieve this goal, the following tasks were set:

- Study of feed collection characteristics of termites;
- Determination of food preferences of termites;
- To determine the characteristics of mutual feeding between termites;

RESEARCH METHOD

To determine the feeding characteristics of working termites between layers of different ages.

To do this, small 1–3-year-old, medium 4–5-year-old, and large 6–8-year-old working termites were taken and divided into 2 groups. Each Petri dish was filled with filter paper 2.5x2.5 cm in size, cut into squares. Half of the termites in each group were immersed in these cut square papers in 0.3 ml of a 0.5 percent red neutral solution to stain the termites 'gut. The other half of the termites were fed only on paper treated with distilled water. After 3 days, as shown above, the two groups of termites were mixed, and depending on the degree of staining, it was

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determined that the food passed from one termite to another, depending on the appearance of dye in the intestine of the undyed termites. At the same time they are kept by soaking the macha without any nutrients. For termites, only the experimental or termite vomiters in this container can be food. Using the feeding rate of pure termites staining with experiments or vomiters, we can draw conclusions about the transfer of feed between workers of different ages. Trofolaxis is present, sluggish and well rated. Termites of each age were studied 3 times.

THE MAIN FINDINGS AND RESULTS

Here, too, we evaluated the degree of nutrient transition in the scoring system shown above.

RESULTS OBTAINED AND THEIR ANALYSIS

Independent feeding ability of different young termites. The feeding and viability of termites of different ages differed greatly from the experimental results (Table 1). Observations began with 2-year-old working termites because 1-year-olds could not survive due to their inability to withstand laboratory conditions. 2-year-old termites also have very poor viability when stored separately. Most of the insects would die within 7 days. The results show that working termites under 6 years of age have a very poor viability when stored in isolation from termites of other ages and strata. The mortality of insects at 2, 3, 4, 5 and 6 years before the 7th day of the experiment was 85%, 75%, 75% -75% -30%, respectively.

Table 1

Trophic activity and viability of working termites of different ages

Age		Quantities of termites, ex.	Number of live termites during observation days, ex.			Number of live termites during observation days, ex.
			3	7	10	
II	K	20	7	3	0	
	O	20	7	0	0	unpainted
III	K	20	8	5	0	
	O	20	5	0	0	dull painted
IV	K	20	12	5	2	
	O	20	10	0	0	dead termites are poorly painted
V	K	20	5	5	3	
	O	20	2	0	0	dead termites are poorly painted
VI	K	20	7	6	4	
	O	20	7	1	0	dead termites are poorly painted
VII	K	20	12	10	9	
	O	20	8	4	0	the dead termites are well painted
VIII	K	20	15	14	10	

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	O	20	12	7	5	Live and dead termites are well painted

Note: K - control; O – experience

Termites at the age of VII and VIII show the highest viability. At 7 days of our observation, their survival reaches 50 to 75%, respectively. If we compare these figures with termites of the II age, it can be said that the viability of workers at the age of VII-VIII is 2-4 times higher than at the age of II. When the trophic activity of the termite was analyzed, its age-specific feature was determined. Depending on the degree of staining with red neutral dye, it can be said that the trophic activity of the insects was low up to 6 years of age. The 2-year-old workers in the experiment were not painted at all. This means that they do not eat independently at this age. The staining of 7-8-year-old termites is evidence of active independent feeding of termites at this age. In general, trophic activity and viability are highly dependent on the age of the termites. Younger termites do not feed independently, middle-aged termites have sufficient trophic activity, and older working termites can also actively feed independently. This means that the most actively eaten termites among working termites are middle-aged and older workers.

Table 2

Independent feeding ability of different strata termites

Variant №	Plates	Number of terites (ex).	Number of live termites during observation days, ex			The degree of staining as a result of the consumption of termites
			3	7	10	
1.	soldiers	20	4	0	0	no
2.	workers	10	7	5	2	Weak
3.	workers	18	18	17	15	Good
	soldiers	2	2	1	1	
4.	workers	20	20	20	18	Good
5.	nymphs	10	9	7	5	Weak
6.	workers	15	15	14	14	Good
	nymphs	5	5	4	4	

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The level of paper consumption in the Petri dish is that active termites are more active than

other castes. The feeding of nymphs is not as rapid as that of working termites. When nymphs and workers are mixed, the viability of nymphs increases. This suggests that the feeding of nymphs depends on the workers.

Living nymphs independently without workers leads to a sharp decline in their viability. This may be due to the slowness of their trophic activity. According to these data, workers play an important role in the food chain, they have emerged not only as a supplier of food, but also as a carrier and feeder of other castes i.e. nymphs and soldiers as a class.

Nutritional relationships between workers of different ages. In Option 3 of the experiments, we examined the nutritional relationships between working groups of different ages. To do this, 20 equal, painted and unpainted small, medium and large termites were mixed in different combinations. We examined how the feed passed from one group of insects to another group of insects 3 days after mixing.

It is found (Table 3) that feed from workers of different ages passes to each other, but the rate of transition is not the same. Apparently, it passes very slowly or not at all from young workers to middle and older workers. Middle-aged workers will be the "leaders" in food transportation. Older workers do not feed young workers and are slow to pass on to middle and older workers. This means that there is a nutritional relationship between workers of different ages, in which a large group of middle-aged workers play a major role. But the feed is consumed in large quantities and in large quantities by a group of older workers. Younger workers are fed independently but are not active and receive additional nutrition from middle-aged people. Thus, our observations show that the nutritional activity of termites in different castes and ages varies. This is especially evident in more working termites. Soldiers are completely dependent on the workers in their feeding. The nymphs are partly fed on themselves by working termites. Trophic activity is very high among workers, especially in middle and older termites, but older termites consume more food than middle-term termites. Middle-aged workers are the most active in transporting food to large and small termites.

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Table 3
The rate of transition of colored food between termites of different ages (tropholaxis)

№	Age	Dyeing	The degree of staining of "pure" termites)
1	Small	painted	
	Small	unpainted	No
2	Small	painted	
	Medium	unpainted	Very weak
3	Small	painted	
	Big	unpainted	Very weak
4.	Medium	painted	
	Small	unpainted	Good
5.	Medium	painted	
	Medium	unpainted	Good
6.	Medium	painted	
	Big	unpainted	Good
7.	Big	painted	
	Small	unpainted	No
8.	Big	painted	
	Medium	unpainted	Weak
9.	Big	painted	
	Big	unpainted	Weak

Thus, the trophic activity of termites is manifested in the trophic dependence of these individual castes (nymphs and soldiers) on workers of a general nature. There is also an age-specific specialization in food consumption among workers, i.e., older termites are the most effective inter-caste food transporter in consumption.

CONCLUSION

In the tropholaxis chain in termites, working termites play a leading role in food accumulation and transmission to other layers. Among termites of different ages, middle-aged and older termites form the basis of the food chain.

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