



**ASSESSMENT OF INSECT FAUNA IN KEBBI STATE
UNIVERSITY OF SCIENCE AND TECHNOLOGY,
ALIERO, KEBBI STATE**

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ABSTRACT

*Assessment of insect composition is important in predicting environmental health of any ecological zone. In this study, we assessed the insect fauna of Kebbi State University of Science and Technology Aliero. Three areas were sampled using sweep net. The areas were Botanical garden, Behind girls hostel and the faculty of Life Sciences. In total, 102 insects were captured, as follows: Botanical garden (66 insects), Behind girls hostel (32 insect) faculty of life science (06 insects). Species of insect captured include *Periplaneta americana* (26.0%), *Catopsela folium*(2.0%), *Eurema spp* (7.0%) *Microcentrum rhombifoldum* (1.0%) *Schistocerca americana* (63.0%) and *Microsphorus spp* (1.0%). All insects captured belong to six genera which include *Periplaneta* (27), *Catopsilia* (2) *Eurema* (7) *Microcentrum* (1); *Schistocerca* (64) and *Microsphorus* (1). It was therefore inferred that insect species diversity in the University is low. Laws banning indiscriminate destruction of insects in the study community is hereby recommended to promote insect survival and to avoid extinction of profitable insects.*

Keywords: *Distribution, Insects, Fauna, University, Kebbi, State*

INTRODUCTION

Insects have significant influence and importance to man because of their diversity, ecological role, and influence on agriculture, human health, and natural resources (Berenhaum, 1995; Adetundanet *al.*, 2005; Premalathaet *al.*, 2011). They are closely associated with man, affecting him in diverse ways. Certain species of insects have been used extensively in scientific studies to

unravel natural phenomena that are little understood. For example they have been used in ecology, evolution, genetics, climate change, developmental biology etc. They are believed to make up more than half of the known global biodiversity, found in all habitat types and play major roles in the function and stability of terrestrial and aquatic ecosystems (Godfray,2002). Environmental condition of any ecological region predicts the diversity of insect species found in them (Yi *et al.*, 2012).

The composition of insect fauna in Kebbi State University of Science and Technology, Aleiro (KSUSTA) has not been sufficiently reported. Insect biodiversity studies conducted in University have largely been on the insects' diversity of specific orders and/or species of insects.. This study was designed assess the composition of insects fauna in Kebbi State University of Science and Technology, Aliero.

MATERIAL AND METHOD

Study Area

The study was carried out in Kebbi State University of Science and Technology, Aliero. The area is located in the extreme North -West of Nigeria coordinates 12.1821.9⁰North,42934.6⁰ East of the equator. Aleiro Local Government shares common borders with Gwandu Local Government Area on the North-East, Jega Local Government Area on the South-East, on the East is Tambuwal Local Government Area of Sokoto State, while to the North-East it is bordered by Birnin Kebbi Local Government Area

Collections of insect stocks

Insect specimens were collected within the University in the following areas:

1. In the botanical garden
2. Behind girls hostel (In the open field/ grass land)
3. Around the faculty of Life Sciences

Sampling was conducted between 8.00am and 1.00pm weekly between September and December, 2020 during the peak of dry season.

Materials

1. Vial containing alcohol.
- 2.. Sweep net of different texture/sizes
3. Plastic vials for storing specimens.
4. Aspirator for collecting tiny insects.

5. Killing bottles of various sizes
6. Fine brush (camel's hair brush)
7. Absorbent tissue paper
8. Notebook and writing materials
9. A hand lens

The procedure involves the use of sweep net was used to catch flying insects; the net was stroke-swing through the insect population rapidly to force the insect into the very bottom of the net. It was then twisted to hang the bottom of the net over the rim so that the specimens cannot escape. For flying insects that alight on the ground, a down stroke was quickly swung down on top of the insect. With the rim in contact with the ground, the tip of the net was held up with one hand to allow the insect fly or crawl upward into the tip of the net. The tip of the net was then flipped over the rim to entrap the specimens. Insects within vegetation were collected by sweeping the net through the vegetation, along the sand and up and down tree trunks, and near water bodies to catch specimen. After a catch was made, a strong swing was done to move anything in the net to the bottom and then immediately the middle of the net was grasped with the free hand to confine the specimen to a small part of the net. The catch was then transferred from the net to a killing bottle.

3.4 Killing and Preserving of Insects

All insect specimens collected were immersed in 70% ethanol. However, insects like moths or butterflies having wings and scales on their wings were preserved by drying on an adsorbent white paper with good ventilation. The dried specimens were preserved in a labeled specimen bottle

3.4 Identification of Insect species

The preserved insect specimens were taken to the Department of Animal And Environmental Biology, Kebbi State University of Science and Technology, Aleiro, for identification.

3.5 Data Analysis

The generated data were presented in form of percentages, different Species and genera of Insects were determined and enumerated.

RESULTS

Prevalence of insects trapped with respect to the sampling areas is depicted in table 1. Three areas were sampled. Overall, 102 insects were captured. Of these,

66(65.0%) were from the Botanical garden, 32(31.0%) Behind girls hostel and 6(6.0%) from the faculty of Life Sciences. The distribution of insects according to their genera is given in table 2. The highest frequency was recorded in the genera *Schistocerca* (64.0%), followed by *Periplaneta* (26.0%). While the least number of insect (with only one insect each ie 1.0%) was recorded in the genera *Microcentrum* and *Nicophorus*. Also, the frequency of insect species encountered, is presented in table 3. These include *Periplaneta americana* (26.0%), *Catopsela folium*(2.0%), *Eurema* spp (7.0%) *Microcentrum rhombifoldum* (1.0%) *Schistocerca americana* (63.0%) and *Microsphorus* spp (1.0%). All insects trapped belong to six genera which include *Periplaneta* (27), *Catopsilia* (2) *Eurema* (7) *Microcentrum* (1); *Schistocerca* (64) and *Microsphorus* (1).

Table 1: Prevalance of Insects collected from each location in the University

Location of collection	Number of Insects Captured	%
Botanical Garden	66	65.0
Behind Girl's Hostel	32	31.0
Faculty of Life Sciences	06	6.0
Total	102	100

Table 2: Distribution of Insects according to genera

Genera	Number of insects	%
<i>Periplaneta</i>	27	26.0
<i>Catopsilia</i>	2	2.0
<i>Eurema</i>	7	7.0
<i>Microcentrum</i>	1	1.0
<i>Schistocerca</i>	64	63.0
<i>Nicophorus</i>	1	1.0

Table 3: Frequency of Insects species captured

Insects species	Frequency of species	%
<i>Periplaneta americana</i>	27	26.0
<i>Catopsela folium</i>	2	2.0
<i>Eurema spp</i>	7	7.0
<i>Microcentrum rhombifoldum</i>	1	1.0
<i>Schistocerca americana</i>	64	63.0
<i>Nicrophorus spp</i>	1	1.0
Total	102	100

DISCUSSION

The present study reveals that there were six (6) species of insects collected in the three areas selected for sampling in the University. The insects were mostly pollinators, saprophytes, predators and edible species. Our study reveals that the predominant species is *Schistocerca* followed by *Periplaneta americana*. But other studies reported contrasting results. For example, Okrikata and Yusuf ,(2017), have reported that most abundant insect was *Heteronychus mossambicus* followed by *Termes* sp. and *Goryphus* sp. These differences can be attributed to the variation in environmental conditions, season of insect collection and the presence of susceptible hosts within the study area. This is further explained by the view of khaliq *et al.* (2014) who posited that both abiotic (temperature, humidity, light) and biotic (host, vegetative bio diversity, crowding and diets) significantly influence the insects and their population dynamics. . Not many of the insect species identified are major pest to the annual crops and vegetables grown in the University. Where the occurrence of insect pests of crops and those of medical or veterinary importance are low, it implies that crop cultivation and animal husbandary could be conducted without fear. The economic importance of some of the insects identified is not clear. However, their contributions to the stability of the ecosystem cannot be disputed.

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