



MOSQUITO FAUNA IN SOME WARDS OF MAIDUGURI, BORNO STATE, NIGERIA.

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Abstract

This study was carried out in the months of
January and February, 2017. A total of 223
Mosquitoes were collected from Zilleri
and Suleimanti wards of Damboa Road,
Maiduguri, Borno State. The mosquitoes were
collected using CDC light trap and identified
using standard morphological keys. Out of Two
hundred and twenty-three mosquitoes
captured, 112 were males (44 from Zilleri and 68
from Suleimanti wards) and 111 were females (39
from Zilleri and 72 from Suleimanti). One
hundred and thirty-nine (139) were Anopheles

Mosquitoes (51 from
Zilleri and 88 from
Suleimanti) and 84 were
Culex Mosquitoes (32
from Zilleri and 52 from
Suleimanti). In terms of

KEYWORDS:

Mosquitoes, Culex,
Anopheles,
Malaria.

percentage, Anopheles
species constituted
62.3% and Culex species
37.7%. The study shows
that Anopheles
mosquitoes were more
abundant than Culex
mosquitoes. This has
health implications for
the study areas. Since
malaria disease is
transmitted among
humans by female
Anopheles Mosquitoes.

INTRODUCTION

Mosquitoes are small slender-bodied insects which viciously hunt
their hosts, especially man, for blood meals. They have
worldwide distribution and are found in both tropics and

temperate regions of the world. The Mosquitoes breed in a variety of habitats where there is stagnant water including swamps, edges of the river, slow-flowing streams, tree holes, plant axils, crab holes, broken bamboo stems, tin cans, plastic containers of all sorts, water holding cisterns and tanks, coconut shells, the footprint of animals and man, sand excavation ditches, stone quarry sites, motor vehicle tyres, sunlit or shaded quiescent water, scoop in concrete slabs used in feeding animals and cassava fermentation pots. (Onyido et al.,2006; Iwuala, 1979).

Mosquitoes are members of a family of nematocerotid flies: The Culicidae (from the Latin *culex*, genitive *culicis*, meaning "midge" or "gnat"). (Jaeger, 1959) Superficially, mosquitoes resemble crane flies (family Tipulidae) and chironomid flies (family Chironomidae). In particular, the females of many species of mosquitoes are blood-eating pests and dangerous vectors of diseases, whereas members of the similar-looking Chironomidae and Tipulidae are not. Many species of mosquitoes are not blood eaters and of those that are, many create a "high to low pressure" in the blood to obtain it and do not transmit disease. Also, in the bloodsucking species, only the females suck blood. (Molavi, 2003) Furthermore, even among mosquitoes that do carry important diseases, neither all species of mosquitoes, nor all strains of a given species transmit the same kinds of diseases, nor do they all transmit the diseases under the same circumstances; their habits differ. For example, some species attack people in houses, and others prefer to attack people walking in forests. Accordingly, in managing public health, knowing which species or even which strain of mosquito one is dealing with is important.

Over 3,500 species of mosquitoes have already been described from various parts of the world. (Molavi, 2003) Some mosquitoes that bite humans routinely act as vectors for a number of infectious diseases affecting millions of people per year. (Molavi, 2003) Others that do not routinely bite humans, but are the vectors for animal diseases, may become disastrous agents for zoonosis of new diseases when their habitats are disturbed, for instance by sudden deforestation. (Wilcox and Ellis, 2006).

Mosquitoes are regarded as public enemy because of their biting annoyance, noise, nuisance, sleeplessness, allergic reactions, and disease transmission due to their bites. They transmit human diseases such as malaria, yellow fever, dengue haemorrhagic fever and encephalitis (Onyido et al.,2006; Monath, et al., 1975).

Mosquitoes also transmit animal disease like the fowlpox of poultry, myxomatosis of rabbits, Rift Valley fever of sheep, encephalitis of horses, birds, and heartworm diseases of dogs (Soulsby, 1982)

All these diseases cause great suffering to man and livestock. They do not only cause high morbidity and mortality in human and animal populations but lead to huge economic loss (Soulsby, 1982; Gordon et al., 1972)

MATERIALS AND METHODS

The methods involved the weekly collection of mosquito species from and around the polluted areas of the study areas from January to February, 2017. The mosquitoes were taken to the Department of Entomology and Parasitology laboratory for identification, after being released into glass jar containing 70% alcohol, as preservative.

IDENTIFICATION OF MOSQUITOES

The following keys were used for morphological identifications as:- Size of the Head, Size of the Thorax, Length of the palp, Antenna ,Spotted Wings and Speckled legs.

Aedes

For Aedes mosquito keys for identification involved

- i. Black and white stripe markings on their body and legs

Anopheles

For the Anopheles mosquito, keys for identifications include:

- i. Wings with contrasting pale and spots
- ii. Wings entirely dark – scaled.
- iii. Hind tarsomeres not entirely pale
- iv. Maxillary palps with four(4) pale bands

- v. Abdominal terga densely covered with broad pale scales and prominent posterolateral dark scaled – turfs on all segment.

RESULTS

A total of 223 Mosquitoes were collected, of which 88(39.5%) were adult *Anopheles* species from Suleimanti ward and a total of 51(22.9%) were *Anopheles* species recorded in Zilleri ward. There was a total catch of 52(23.3%) *Culex* mosquitoes in Suleimanti and 32(14.3%) adult *Culex* Mosquito species in Zilleri ward of Damboa road. (Table1).

TABLE 1:- Prevalence of Mosquito Species at the study area

Species	Location	No. captured	Percentage
Anopheles	Suleimanti	88	39.5%
	Zilleri	51	22.9%
Culex	Suleimanti	52	23.3%
	Zilleri	32	14.3%
2 species		223	100

In January, Suleimanti had a total catch of 67 Mosquitoes and Zilleri had 33 Mosquito species. In February, Suleimanti had a catch of 73 and Zilleri had 50 Mosquito species caught. Suleimanti and Zilleri have the overall total catch of 140 and 83 respectively. Suleimanti have the highest number of Mosquito catch (140) and Zilleri 83 (Table 2).

TABLE 2:- Monthly Prevalence of Mosquitoes

LOCATION	JAN	FEB	TOTAL
Suleimanti	67	73	140
Zilleri	33	50	83
Total	100	123	223

Suleimanti was found to be higher in female 53 than Male 35 *Anopheles* mosquitoes. Zilleri ward had 29 female *Anopheles* and 22 males. In *Culex*,

Suleimanti has the highest number of males (33) than females 19 and Zilleri have 22 males and 10 female *Culex* Mosquitoes (Table 3).

Table 3:-Prevalence of Mosquito Species According to Sex

Species	Location	Total collected	Male	Female
Anopheles	Suleimanti	88	35(15.6%)	53(23.9%)
	Zilleri	51	22(9.9%)	29(13.0%)
Culex	Suleimanti	52	33(14.8%)	19(8.5%)
	Zilleri	32	22(9.9%)	10(4.5%)
Total		223	112	111

DISCUSSION

The study shows that there is much abundance of *Anopheles* than *Culex* mosquitoes which implies that since this species abound in the study area, there is the potential of health consequences in terms of transmission of malaria. Malaria is transmitted among humans by female *Anopheles*. The female mosquitoes take blood meals to carry out egg production, and such blood meals are linked between the human and the mosquito hosts in the parasite life cycle. The successful development of the malaria parasite in the mosquito from the “gametocyte” stage to the “sporozoite” stage depends on several factors. The most important is the ambient temperature and humidity. Higher temperature accelerates the parasite growth in the mosquito (CDC, 2015).

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Culex mosquitoes transmit diseases like arbovirus infection such as West Nile virus, Japanese encephalitis, or St Louis encephalitis, filariasis and avian malaria.

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CONCLUSION

The result shows that both *Anopheles* and *Culex* mosquitoes are of abundance in the study areas, which have human activities like littering the environment with empty containers that provide suitable grounds for breeding by mosquitoes. As a result of this, there is a potential of disease transmission by the mosquitoes which are vectors of various diseases.

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