

## **Efficacy of *Occimum Gratissimum* (Scent Leaf) On The Larvae And Adult Of *Culex Quinquefasciatus***

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**ABSTRACT:** *Mosquitoes are the major vectors of diseases such as malaria, dengue, filariasis e.t.c which led to the thousands of death yearly. World Health Organisation (WHO, 2005). In Nigeria, the repellent activity of ointments formulated with Occimum gratissimum oil has been reported against Ae. aegypti and Culex quinquefasciatus mosquito (Esimone et al., 2011). Mechanical aspirator will be use to catch the blood fed female Culex mosquito and it will be introduced into a mosquito rearing cage containing a transparent rubber filled with a distilled water for egg laying. Mouse pellet will be use to feed the Larvae i.e L1, L2 and L3. Two set ups both for Smoke and scent will be set with a control experiment in each. Analysis of variance will be to compare between the two set ups for the efficacy of Occimum gratissimum to repels mosquito.*

**KEYWORDS:** *Occimum gratissimum, scent leaf, larvae, adult, Culex quinquefasciatus*

### **INTRODUCTION**

Mosquitoes are the deadliest vectors of parasites that cause disease such as malaria, filariasis, Japanese encephalitis, dengue fever, dengue hemorrhagic fever and yellow fever (Renugadevi et al., 2012). *Aedes aegypti* alone is a very important disease vector, transmitting the arbovirus that causes dengue fever and dengue hemorrhagic fever, chikungunya, and allergic skin reaction especially in children which is endemic to Southeast Asia, the pacific Island area, the American and Africa (Supratik et al., 2010).

There are about 3,500 approximately species of mosquitoes in the world, forty one (41) are different types of general (class). Mosquitoes can live in almost any environment, with the exception of extreme cold water. They favour forest marshes, tall grasses and weeds that is wet at least part of the year (leisnham, 2012). Although, all mosquitoes breed in water, the available type of breeding habitat is likely to change at different time of the year. The length of the mosquito life cycle varies between specie and is dependent upon environmental conditions such as temperature and moisture. However, the life cycle of all mosquitoes is comprised of the egg, larval, pupae and adult stages (Wayne, 2013).

In Nigeria, misdiagnosis of Dengue (DEN) infection for malaria/typhoid has been detected, still in Nigeria, the four forms of dengue are: (DEN-1, DEN-2 DEN-3, DEN-4) have been detected in *Ae. aegypti* (Baba *et al.*, 2009).

Scent leaves have a distinctive smell and taste, sometimes unpleasant, fragrant or sweet depending on the way of cultivation. Scent leaf (*Occimum gratissimum*) is an aromatic perennial herb wildy grown in Nigeria. It is commonly known as “Effirin” in Yoruba “Nchuanwa” in Igbo and in Hausa “Dai doya ta gida” (Orwa *et al.*, 2009).

## MATERIAL AND METHOD

Blood fed adult *Culex* mosquitoes was caught using mechanical aspirator and brought to the lab were it was introduced into the entomological cage for egg laying. Rubber containing a tap water was placed inside the cage for the adult mosquito to oviposit. Mouse pellet was used to feel the emerged mosquito.

The scent leaf was collected and be thoroughly washed with tap water to remove any dust. In the first set up, the leaf was left in the cage as for odour method while in the second set up, the scent leaf was burnt on wire gauze as for smoke method leaving the third set up without putting anything as the control.

The set ups were allowed to stand for one hour, same procedure was repeated twice following same process.

## RESULT AND DISCUSSION

Bar-chart and simple percentages were used to interpret the effective method of mosquito control between the odour and smoke method to control mosquito using scent leaf.

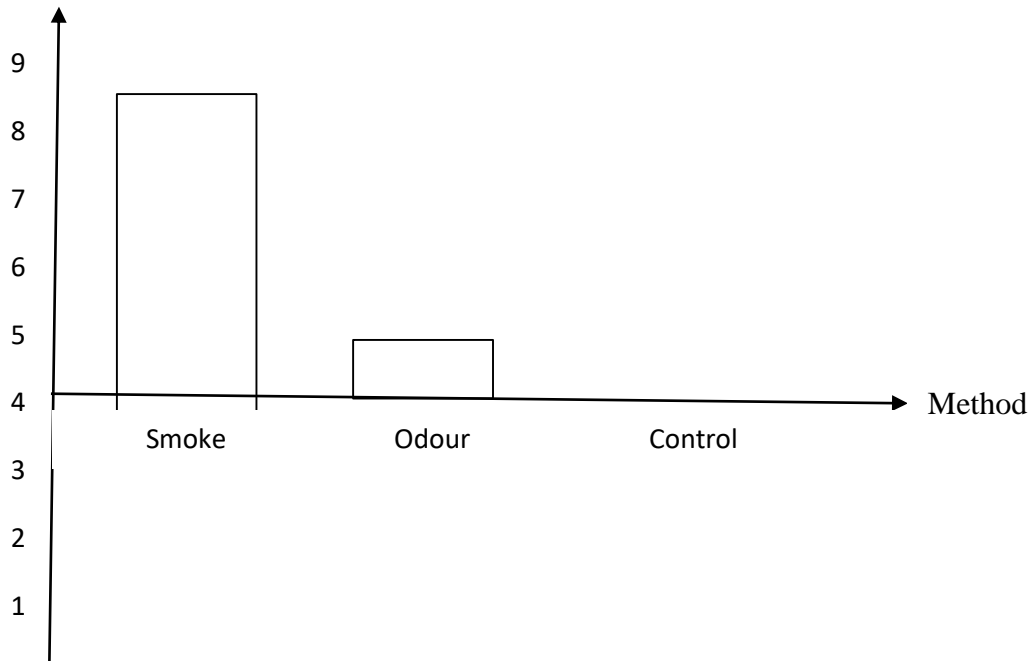
### Cluster A. Male Hostel

**Table 1: Below shows the data obtained from experiment one (1)**

S/N	Method Used	Frequency of death mosquito	Cumulative Frequency
1.	Smoke	6	6
2.	Odour	1	7
3.	Control	0	7

The data obtained from table 1 above will be presented on a bar-chart below:

Frequency of data mosquito



A bar-chart representation of table 1.

The bar-chart above shows that, using smoke method against the mosquitoes killed six (6) mosquitoes, using odour method killed only one (1) mosquito and non of the mosquitoes were killed in the control method.

**Cluster B. Female Hostel**

**Table 2: below shows the data obtained from experiment two**

S/N	Method Used	Frequency of death mosquito	Cumulative Frequency
1.	Smoke	16	16
2.	Odour	2	18
3.	Control	0	18

The data obtained from table (2) above is presented on a bar-chart below:

Frequency of death mosquitoes



A bar-chart representation of table 2

The bar-chart above shows that, using smoke method against the mosquitoes killed sixteen (16) mosquitoes, using odour method killed two (2) mosquitoes and none of the mosquitoes were killed in the control method.

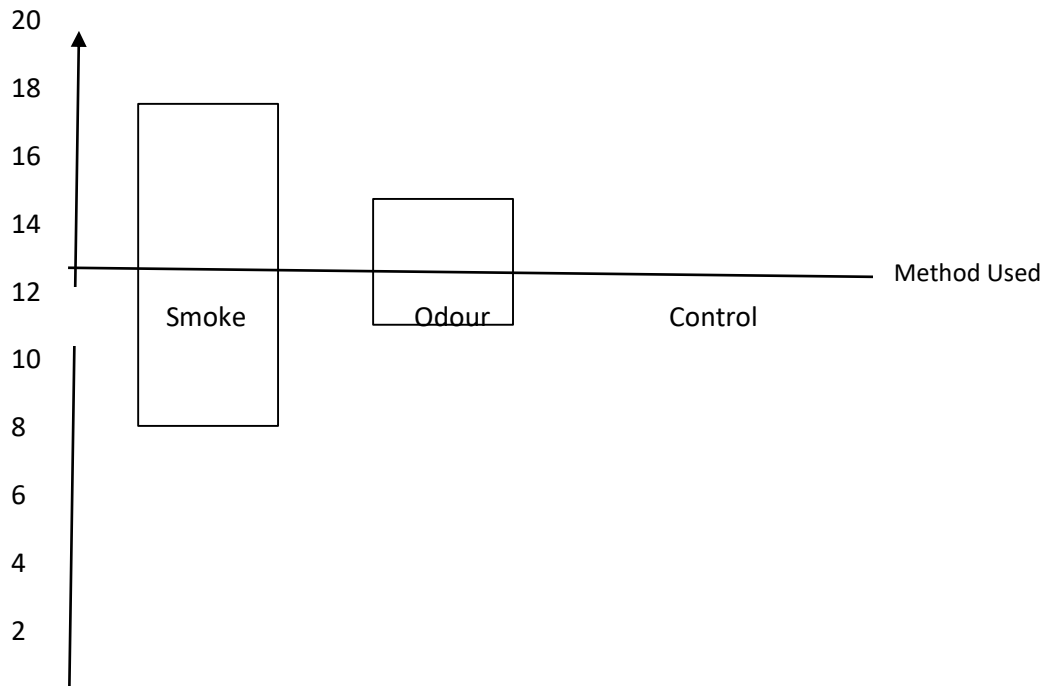
### Cluster C. School of Science

Table 3 below shows the data obtained from experiment three (3).

S/N	Method Used	Frequency of death mosquito	Cumulative Frequency
1.	Smoke	11	11
2.	Odour	4	15
3.	Control	0	15

The data obtained from table 3 above is presented on a bar-chart below.

**Frequency of death mosquitoes**



A bar-chart representation of table 3.

The bar-chart above shows that, using smoke method against mosquitoes killed eleven (11) mosquitoes, using odour method killed four (4) mosquitoes and none of the mosquitoes were killed in the control method.

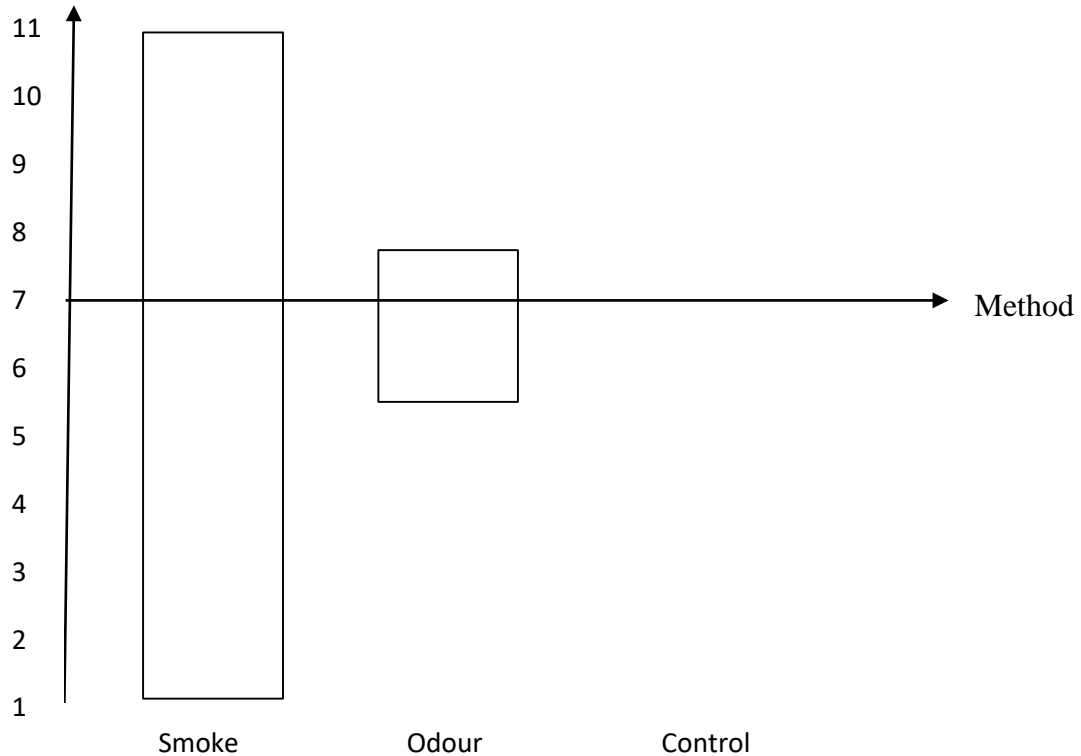
**Table 4: Shows the average and percentage of dead mosquitoes from the whole experiment carried out.**

S/N	Method Used	Total of No. of death mosquito	Average	Percentage
	Smoke	33	11.0	83.0%
	Odour	7	2.3	17.0%
	Control	0	0.0	0.0%
	Total	40	13.3	100%

The data obtained from table 4 above shows that 83% of the dead mosquitoes were killed by smoke method, 17% was killed by the odour method and 0% by control method.

Below is a bar-chart showing the average number of mosquitoes died against the method used from table 4 above.

**Average number of dead mosquitoes**



A bar-chart representation of table 4.

The bar-chart above shows that, the average number of dead mosquitoes in smoke, odour and control methods are 11, 2.3 and 0 respectively.

**DISCUSSION OF FINDINGS**

According to the result obtained from the experiment, data was presented and analyzed using bar-chart and simple percentage. The following are the result obtained from the experiment: The smoke method is very efficient towards controlling mosquito using scent leaf. By having about 83% of the death mosquitoes from the smoke method of the experiment carried out. The odour method is less effective than smoke method towards controlling mosquito by using scent leaf. By having 17% of the death mosquitoes from odour method of the experiment carried out.

The control methods have no impact as well as effect towards controlling mosquito. This was proved by having 0% of the death mosquitoes from the control method of the experiment carried out. Hence, to control mosquito an action must be done.

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