



Regular Article

Diversity of Mosquitoes in Jalna urban, Maharashtra State, India

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ABSTRACT: Present paper deals with the study of diversity of mosquitoes in Jalna urban of Maharashtra state in one year that is from June 2008 to May 2009. During a period of two years a total number of 1998 mosquitoes were collected and examined. Percentage density of different genera was found as *Anopheles*-64.71%; *Aedes*-19.61%; *Culex*-11.61% and *Mansonia*-4.05%.

Key words: Mosquitoes, Jalna, diversity, *Anopheles*

Introduction

Mosquitoes play an important role in spreading diseases, *Anopheles*-Malaria, *Culex*- Bancroftian filariasis, Japanese encephalitis, *Aedes*-dengue and chikungunya fever, *Mansonia*-Malayan filariasis and chikungunya fever. Mosquitoes belong to class insect, order Diptera and family culicidae. This family contains about 3500 species in three sub families anophelinae (3 Genera) and culicinae (at least 37 Genera), and the toxorhynchitinae (1 Genus). Mosquitoes play an important role in ecosystem like food for aquatic organisms and they are vectors for various diseases. In most of the species females suck blood from the hosts. The mosquitoes are variable in their sizes. Mosquitoes weigh from 2-2.5mg. They can travel up to 1-2km/hr and reach at most up to 11 kms in search of food and mate. Most of the species are nocturnal or dawn or evening feeders (Jawetz, 1987). Jalna city is situated at the center of Maharashtra State and in northern direction of marathwada region. It lies between 19°1' north to 21°3' north latitudes and 75°4' east to 76°4' east latitude.

Materials and methods

The mosquitoes were collected from five sampling sites by using different aspirators and nets, resting boxes and repellents during the

morning and evening hours. A search for adult mosquitoes was made in every possible habitat like human dwelling, cattle shade, sites such as bushes, discarded containers and garbage dumped wet lands. After collection, samples were immobilized with 70% alcohol followed by their sorting up to genera level and their photography using dissecting microscopes and digital cameras. Identification was based on adult characters using standard taxonomic key and catalogues of mosquitoes identification key of Christophers (1933) and catalogue of Nagpal and Sharma (1995).

Results and Discussion

Table 1, 2, 3, 4 and 5 shows that during a period of one years a total number of 1998 mosquitoes were examined. Percentage density of different genera was found as *Anopheles*-64.71%; *Aedes*-19.61%; *Culex*-11.61% and *Mansonia*-4.05%. There are four genera found in Jalna urban at all the four sampling sites chosen. The present work states that the *Anopheles* mosquitoes were most abundant in number and their density that is, 64.71% followed by *Culex* i. e. 19.61%, *Aedes* 11.61% and *Mansonia* was lowest that is, 4.05%. The seasonal pattern of prevalence suggests that the maximum was during Jun Sept, followed by Oct-Jan. and lowest in the Feb-May 2009. *Anopheles* mosquitoes are most dangerous amongst the four genera and are responsible for spreading of Malaria. Discarded coconut containers are the ideal breeding sites for *Aedes* mosquitoes which are dangerous because they are vectors for chikungunya and dengue fever. *Culex* mosquitoes are vectors for viral arthritis and bancroftian filariasis. *Mansonia* mosquitoes are vectors for Malayan filariasis. There is acute need of action to reduce the breeding sites of mosquitoes and public awareness regarding mosquitoes and the diseases caused by them.

Table 1. Site wise collection of no. of mosquitoes in year 2008-09

| Sr no | Name of sampling sites | No. of mosquitoes collected | | |
|-------|-----------------------------------|-----------------------------|-----------------|------------------|
| | | June 08 to Sept.08 | Oct08 to Jan 09 | Feb.09 to May 09 |
| 1 | Chaman area | 187 | 148 | 72 |
| 2 | Ram mandir area | 212 | 135 | 82 |
| 3 | Bus stand area | 277 | 140 | 113 |
| 4 | Aurangabad road area | 196 | 118 | 42 |
| 5 | Mantha road area | 161 | 57 | 39 |
| | Total no. of mosquitoes collected | 1033 | 598 | 348 |

Table 2. Genus wise distribution of mosquitoes in all sampling sites during June-September 2008 (1033 mosquitoes)

| Sr. no. | Name of sampling site | Genera of Mosquitoes | | | | Total |
|---------|-----------------------|--|--|--|---|-------|
| | | <i>Anopheles</i> (no. of mosquitoes collected) | <i>Culex</i> (no. of mosquitoes collected) | <i>Aedes</i> (no. of mosquitoes collected) | <i>Mansonia</i> (no. of mosquitoes collected) | |
| 1 | Chaman area | 122 | 43 | 18 | 4 | 187 |
| 2 | Ram mandir area | 160 | 33 | 12 | 7 | 212 |
| 3 | Bus stand area | 190 | 42 | 33 | 12 | 277 |
| 4 | Aurangabad road area | 146 | 28 | 30 | 12 | 196 |
| 5 | Mantha road area | 110 | 32 | 16 | 3 | 161 |
| | Total | 728 | 178 | 109 | 38 | 1033 |

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Table 3. Genus wise distribution of mosquitoes in all sampling sites during October 2008 to January 2009 (598 mosquitoes)

| Sr. no. | Name of sampling site | Genera of Mosquitoes | | | | Total |
|---------|-----------------------|--|--|--|---|-------|
| | | <i>Anopheles</i> (no. of mosquitoes collected) | <i>Culex</i> (no. of mosquitoes collected) | <i>Aedes</i> (no. of mosquitoes collected) | <i>Mansonia</i> (no. of mosquitoes collected) | |
| 1 | Chaman area | 94 | 35 | 15 | 4 | 148 |
| 2 | Ram mandir area | 88 | 28 | 12 | 7 | 135 |
| 3 | Bus stand area | 90 | 22 | 19 | 09 | 140 |
| 4 | Aurangabad road area | 72 | 18 | 20 | 08 | 118 |
| 5 | Mantha road area | 28 | 16 | 9 | 3 | 57 |
| | Total | 372 | 119 | 75 | 31 | 598 |

Table 4. Genus wise distribution of mosquitoes in all sampling sites during Feb. 09 to May 09 (348 mosquitoes)

| Sr. no. | Name of sampling site | Genera of Mosquitoes | | | | Total |
|---------|-----------------------|--|--|--|---|-------|
| | | <i>Anopheles</i> (no. of mosquitoes collected) | <i>Culex</i> (no. of mosquitoes collected) | <i>Aedes</i> (no. of mosquitoes collected) | <i>Mansonia</i> (no. of mosquitoes collected) | |
| 1 | Chaman area | 39 | 18 | 13 | 2 | 72 |
| 2 | Ram mandir area | 42 | 29 | 10 | 1 | 82 |
| 3 | Bus stand area | 67 | 30 | 12 | 4 | 113 |
| 4 | Aurangabad road area | 24 | 9 | 7 | 2 | 42 |
| 5 | Mantha road area | 21 | 9 | 6 | 3 | 39 |
| | Total | 193 | 95 | 48 | 12 | 348 |

Table 5. Percentage density of genera of *Anopheles*, *Culex*, *Aedes* and *Mansonia* in the Jalna urban during study years (2008- 2009)

| Sr. no. | | Genera of Mosquitoes | | | | Total |
|---------|-----------------------------------|--|--|--|---|-------|
| | | <i>Anopheles</i> (no. of mosquitoes collected) | <i>Culex</i> (no. of mosquitoes collected) | <i>Aedes</i> (no. of mosquitoes collected) | <i>Mansonia</i> (no. of mosquitoes collected) | |
| 1 | Total no. of Mosquitoes collected | 1293 | 392 | 232 | 81 | 1998 |
| 2 | Percentage density | 64.71% | 19.61% | 11.61% | 4.05% | 100% |

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