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Assessment of mosquitoes from Dinger wala district Karak, Khyber Pakhtunkhwa, Pakistan

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Abstract

The present research study was designed to assess the mosquitoes from Dingerwala District Karak Khyber Pakhtunkhwa, Pakistan. Five species of mosquitoes were collected, of which 2 species belonged to the genus *Anopheles*, 2 species to *Aedes* and 1 species of the Genus *Culex*. Maximum fauna were collected from shady areas, moist habitat and used tires. *Aedes albopictus* was recorded almost from fresh water body sites. The *C. quinquefasciatus* was abundantly found in all the collection sites. Maximum fauna of the mosquito were recorded in the month of August-September and minimum were observed in the months of November-December. Mosquitoes prefer more humidity and less temperate zone. From the present study, it can be concluded that if mosquitoes habit like Stagnant water, rain catch basin and used tire have to crush completely because it provide a breeding site for mosquitoes.

Keywords: Dingerwala, mosquito, fauna, identification, family, vector, malaria

1. Introduction

Among all the insects, mosquitoes are important due to their involvement in spreading of many diseases like malaria, dengue and filariasis in humans and also creating nuisance. They are highly adaptable insects and prefer different types of habitats for oviposition, resting, feeding, etc. Among these habitats; pattern of vegetation, ponds, water bodies, humans and different animals are important [1-4]. Mosquito survey provides valuable information on occurrence, distribution and species diversity of various mosquitoes in an area which assumes significance due to their public health importance [5]. Mosquito-borne diseases currently represent a greater concern due to the fact of human life at stake in certain areas. Among the mosquito-borne diseases, Malaria is the world's most important vector-borne dreadful disease to humans. According to an estimate 2,073 million people living in 103 countries are at risk of malaria [6]. Only one *Aedes albopictus* species are capable of transmission of at least 20 Arboviruses and filarial worms and has a major role as vector of dengue in Asia [7]. In addition, Dengue is an old disease caused by the mosquito-borne dengue viruses (DENV). The WHO reports that dengue disease is endemic in more than 100 countries around the world, with South-East Asia the most seriously affected [8]. The aim of the research work was to effort for the first time to find out the assessment of Mosquitoes from Dingerwala District Karak, Khyber Pakhtunkhwa, Pakistan.

2. Materials and Methods

2.1 Study Area

Dingerwala is located in the Thal area of District Karak Khyber Pakhtunkhwa, Pakistan. The area comprises Shereen Abad, Hikmat Abad, Qadir Abad, Ghaffar Abad, Hakim Abad and Nadar Abad. This area is known as "Small Bani Gala" named after the residence of legend cricket turn politician Mr. Imran Khan. Mosquito fauna were collected from various selected areas of Dingerwala. Sampling was carried out from 6 pm to 8 pm. Majority species of the Genus *Aedes* were found in the used tires. This area is totally plain and comprises a variety of flora and fauna.



Fig 1: Map of Dinger showing sampling sites Khyber Pakhtunkhwa Pakistan.

3. Materials and Methods

3.1 Collection of samples

Sampling of mosquito fauna was carried out from the selected site as shown in the (Figure 1). Sampling was done from these selected sites of slow moving and stagnant water bodies. Mosquitoes were collected with the help of a manual aspirator and killed with a cotton swab of chloroform.

3.2 Preservation and identification

Samples were preserved in glass tubes over the dry silica gel and were later identified using Taxonomic keys provided in “The fauna of British India, including Ceylon and Burma” by Christophers (1933) [9] and Barraud (1934) [10].

4. Results and Discussion

The present study was conducted on Dingerwala District Karak Khyber Pakhtunkhwa Pakistan over a period of three years (March 2013 to February 2016). Five species of mosquitoes were collected, of which 2 species belonged to the genus *Anopheles*, 2 species to *Aedes* and 1 species of the Genus *Culex* as shown in Table 1. Maximum fauna were recorded from shady areas, moist habitat and used tires. *Aedes albopictus* were collected almost from fresh water body habitat. The *Culex quinquefasciatus* was abundantly found in all the collection sites. Majority of mosquitoes were collected in the month of August-September and minimum were recorded in the months of November-December. Mosquito population increase with less humidity and decrease with high temperature. A study was conducted by Attaullah *et al.* (2015) to find out diversity, species richness, abundance and the population dynamics of mosquitoes in rural areas of Faisalabad. Eleven species of mosquitoes were collected, of which 6 species belonged to the genus *Culex*, 3 species to *Anopheles* and 2 species to the genus *Aedes* [11]. In the present study conducted on Dingerwala District Karak Khyber Pakhtunkhwa, Pakistan only 5 species of mosquito were

identified and classified. The results of both studies were somewhat different because in the present only 5 species of the mosquito were recorded while in the previous study 11 species has been recorded. The variation regarding the number of species may be due to the climatic factors like light intensity or temperature. The mosquito population is directly proportional to the humidity and inversely proportional to the temperature. The Results of the both studies show lots of variation which may be due to environmental changes of the two separate areas.

Table 1: Monitoring of of mosquito fauna in Dingerwala District Karak KP, Pakistan.

S. No	Class	Order	Family	Genus	Species
1	Insecta	Diptera	Culicidae	<i>Culex</i>	<i>quinquefasciatus</i>
2	Insecta	Diptera	Culicidae	<i>Anopheles</i>	<i>maculatus</i>
3	Insecta	Diptera	Culicidae		<i>stephensi</i>
4	Insecta	Diptera	Culicidae	<i>Aedes</i>	<i>albopictus</i>
5	Insecta	Diptera	Culicidae		<i>shortii</i>
Total	01	01	01	03	05

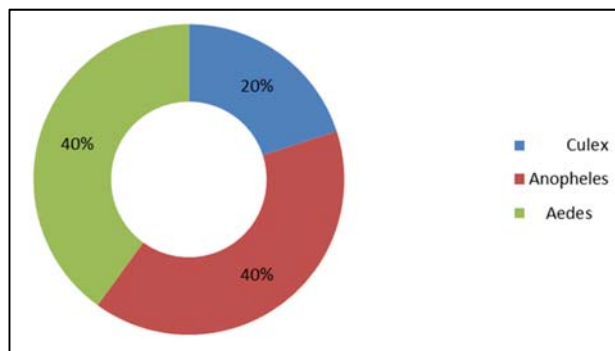


Fig 2: Genus wise percentage of mosquito fauna in Dingerwala District Karak KP, Pakistan.

5. Conclusion

From the current survey, it was concluded that Dingerwala comprises a lot of habitat of mosquito breeding like stagnant water and used tires stock. Furthermore, proper mosquito repelling spray should be done time to time to control the population of mosquito fauna.

6. Acknowledgement

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