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Diversity of Mosquitoes Species from different areas of Ghatanji, Yavatmal District (Maharashtra) India.

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Abstract :-

The present study was conducted to know the diversity of Mosquitoes species in Ghatanji area of Yavatmal district of Maharashtra state. Mosquitoes are important groups of arthropods that inhabit freshwater habitats play an important role in the ecological food chain, and many of them are vicious biters and transmitters of human and animal diseases. The distribution pattern of adult mosquitoes is related to habitat preference of the immature stages. These habitats may be natural or man-made and temporary or permanent. The study was carried out during the period June 2021 to May 2022 from different areas of Ghatanji region. samples were collected from various habitats in 15 selected spots in study area. Collected samples were identified using standard keys. During study period 26 different species of mosquitoes belonging to 4 different genera were recorded namely, Anopheles, Culex, Aedes, and Armigeres.

Keywords :- Mosquitoes, Diversity, Habitats, Anopheles, Culex , Aedes, Ghatanji.

Introduction :-

Biodiversity is the richness of an ecological community. There are 3 to more than 10 million number of plants and animal's species found on earth. Biodiversity of mosquitoes is an important aspect of medical science and is destined to emerge as a new significant and integral aspect of human life. According to Harbache (2013), a total of 3539 species of mosquitoes belonging to 112 genera are found on this earth. Diversity of insects is of great importance to the environmentalist as they are bioindicators. Among the insects, mosquitoes are medically important group of insects and they transmit diseases like malaria, dengue, filariasis etc. Mosquitoes are found in all types of environments associated with water such as sewage water, stagnant water, septic tanks etc. There is an urgent need to check the proliferation of population of vector and non-vector mosquitoes in order to reduce vector borne diseases and their nuisance by using appropriate control methods. The breeding habitat is crucial for mosquito population dynamics, because it is the location where many important life cycle processes take place. In general, mosquitoes stand out most among the numerous species of blood sucking arthropods that co-exist with human. Most of the species act as vector of different that causes malaria, dengue fever, yellow fever, lymphatic filariasis, Japanese encephalitis and other serious disease to human. Because of their medical importance, it is essential to make an inventory of diversity of mosquito in different places periodically, which forms the baseline to study bionomics of vector species as well as correlations with the abiotic factors of environment and to makes strategy for the control over mosquito born diseases. It is noted that the mosquitoes can live in almost every continent and habitat except in the places that are permanently frozen. The warmer climates in tropical areas allow these insects to active all year round since their ideal conditions for proliferation in an environment which is hot and humid with moderate rainfall a typical tropical condition. In hot climate they are able to be more active and the rainfall gives them aquatic sites for larval and pupal stages.

In the recent years, the distribution range of both mosquito and mosquito born diseases are proliferating in large number everywhere due to rapid urbanization, excessive deforestation and resistance among mosquitoes to pesticides, construction of dams and development of new agro ecosystem. Despite several attempts to control them, these remarkably adapted insects continue to coexist with man, feeding on him and his domesticated animals. The knowledge on diversity of mosquitoes in an area provides adequate information on population diversity, distribution pattern and preferential habitat selection which will help to

evolve a suitable strategy. and implement the same for the meaningful suppression of the mosquitoes. Hence it is essential to make an inventory of the mosquitoes in different places periodically to prevent the outbreak of mosquito born diseases. Hence an effort was made to study the diversity and composition of mosquitoes in certain areas.

Material and method :-

Study Area :-

This study was carried out during the period June- 2021 to May - 2022 from different areas of Ghatanji region. These are khapri, Istari Nagar, Nehru Nagar, New Bus stand Area, Amba Nagari, Professor colony, Durga mata ward , Shivaji Chowk, Vasant Nagar and Anand Nagar etc . Ghatanji taluka located at 20 °8'37.2768 " N latitude and 78 °18'42.0048 " E longitude is neighbourhood of the Yavatmal district of Maharashtra state in India. Yavatmal district lies in the Vidarbha region of the state and is popularly known as the 'Cotton city' because in this area farmer produces a fine quality of cotton.

Data Collection :-

Mosquitoes were collected at different habitats which are composed of water storage tanks, stagnant water bodies, plastic vessels, metal vessels, ceramic vessels, useless tires, tree holes, temporary pools, ditches and drainage (gutters) etc, ldentification of Mosquitoes was done by using standard keys.

Collection Stations from Ghatanji Area.

Result and Disscussion :-

Mosquitoes survey was conducted in different areas of Ghatanji from June - 2021 to May-2022. Mosquitoes Species and larvae were collected from various habitats in 15 selected spots of the study area. There are 26 different species of mosquitoes belonging to 4 different genera were identified and recorded. Culex was the most predominant genus with 11 species followed by Aedes (6), Anopheles (8), and Armigeres (1) species respectively. The study area was rich in mosquitoes, the breeding of mosquitoes was observed virtually in all habitats sampled. Ground pools, domestic containers,ditches and drainage (gutters), cemented tanks, useless tires and manmade containers were the main breeding sites for mosquitoes.

Genus Culex represents 11 species, Cx. quinquefasciatus, Cx. fascanus, Cx. univittatus, Cx. fuscocephala. Cx. tritaenorhynchus, Cx. whitmorei, Cx. vishnui, Cx. sinensis, Cx. bitaeniorhynchus. Cx. infula, Cx. pseudovishnui. Genus Culex mainly found in highly polluted urban habitats such as drainages (Chaves, et. al., 2010, Gardener, et. al., 2009, Vonesh and Kraus, 2009). In 1998 Gupta suggested that Cx. quinquefasciatus breed in almost all kind of habitats and stagnant drains suitable for its regeneration.
Genus Anopheles in ghatanji areas represents with 8 species, An. Stephen's, An. culicifacies, An.annularies, An. fluviatilies, An. barbirostris, An. subpictus, An. vagus, An. nigerrimus. According to Seid, et. al., 2013, temporary water bodies such as farm ditches, rain pools, open pits were the most preferred habitats for Anopheline larvae. These habitats are either man made or associated with anthropogenic activities. In 1989 Yadav, et. al., discussed that temporary (hoofprint, riverbed pools), Semi permanent (small pools, paddy fields, irrigation canals and channels), and permanent (pond, river, wells, and intradomestic sources) are the major breeding habitats of Anopheles mosquitoes.

Genus Aedes represents total 6 different species, Ae. scatophagoides, Ae. aegypti, Ae. vittatus, , Ae. albopictus, Ae. walbus, Ae. vexanus were identified. According to Gautam, et. al., 2006 the major breeding habitats of Aedes mosquitoes are temporary pools, cemented tanks, stream pools etc. Campos and Launibos 2000 demonstrated that tyres and tree holes are more likely to support morekind of complex communities. Genus Armigeres in ghatanji areas represent a single species, Armigeres subalbatus from the present study. According to Pramanic, et. al., 2012, suitable breeding habitats for Armigeres are water bodies often polluted and closely associated with human habitation.

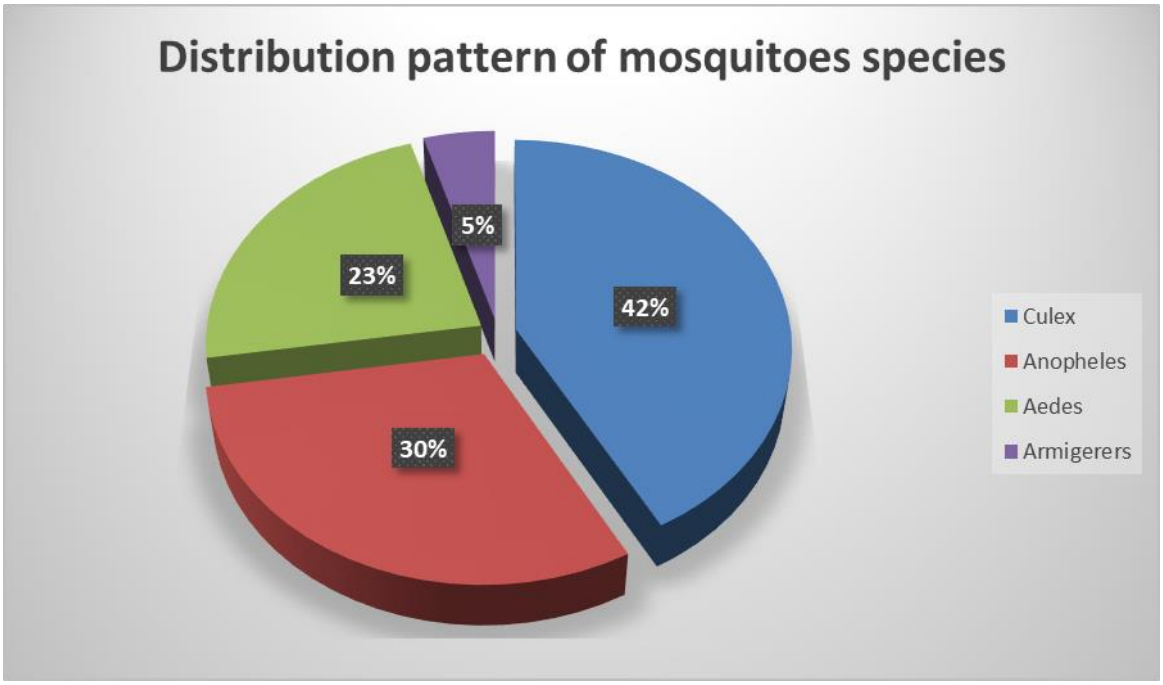
Table.1 List of Mosquitoes Species present in study area Ghatanji.

Sr. No.	Genera	Species
1	Culex	*quinquefasciatus*
		fascanus
		univittatus
		fuscocephala
		tritaenorhynchus
		whitmorei
		vishnui
		sinensis
		bitaeniorhynchus
		infula
		pseudovishnui
2	Anopheles	*stephensi*
		culcifacies
		annularies
		fluviatilies
		barbirostris
		subpictus

		vagus
		nigerrimus
3	**Aedes**	***scatophagoides***
		aegypti
		vittatus
		albopictus
		walbus
		vexanus
4	**Armigeres**	***subalbatus***

Table.2 Species Composition of Collected Mosquitoes

Sr. No.	Genus	No. of Species
1	Culex	11
2	Anopheles	8
3	Aedes	6
4	Armigerers	1



Conclusion :-

This study has provided information about diversity of mosquitoes species from different areas of Ghatanji. This would be helpful for the sustainable management of vector mosquitoes and to take precautionary measures against mosquito borne diseases.

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