



## International Journal of Mosquito Research

ISSN: 2348-5906

CODEN: IJMRK2

IJMR 2021; 8(5): 25-27

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Received: 14-07-2021

Accepted: 17-08-2021

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## Analysis of breeding sites of mosquitoes at Pandharpur, District. Solapur (M.S.)

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**DOI:** <https://doi.org/10.22271/23487941.2021.v8.i5a.559>

**Abstract**

The survey of breeding sites of mosquitoes were carried out from February 2021 to September 2021. The breeding sites in Pandharpur and from adjoining places were surveyed. All possible characteristics of breeding sites were studied. The larvae were collected from breeding sites. The identified larvae belonging to *Culex*, and *Aedes* genera.

**Keywords:** Survey, Breeding sites, Mosquitoes, Larvae

**Introduction**

Pandharpur is a well-known pilgrimage town city on the banks of Chandrabhaga river in Solapur district, Maharashtra, India. Pandharpur is situated in 17°11' north latitude and 75°11' east longitude in Solapur district. In Pandharpur average rainfall is 600 mm. Average temperature is 39°C. Pandharpur is famous for annual pilgrimage (Yatra). In Yatra lakhs of people gathered. Around 2-10 lakhs of pilgrims from all over India gather here [1]. In such a situation Public health issues like communicable diseases i.e. malaria, dengue, chikun gunya are significant. For the effective control of mosquito borne diseases, it is necessary to locate breeding sites of mosquitoes. In the present global scenario of rapidly changing ecological and environmental conditions, there is a need to monitor bionomics of disease vectors on a regular basis [2]. Any place of stored water is the breeding site of mosquitoes. Breeding sites are represented by presence of eggs, larvae and pupae. It is easy to control mosquito at its larval stages than the adult. To achieve it proper data of breeding sites of mosquitoes are essential. Pandharpur has number of Nallas (streams) which are sites for solid waste disposal and carries wastewater. It is needed to avoid the stagnant conditions. Such sites are the potential breeding ground for the mosquito [1]. Analysis of breeding sites with all its characteristic i.e. type (temporary/permanent), level of water, condition of water (clean and dirty), body posture of larvae is essential. Such Analysis is useful for effective management of breeding sites and mosquitoes at local level. The study of key breeding sites by pupal survey for dengue mosquito vector, *Aedes aegypti* and *Aedes albopictus* was significant for making the vector control programme in Guba, Cebu city and Phillipines [3]. Study of container breeding mosquitoes with special reference to *Aedes (Stegomyia) aegypti* and *Aedes albopictus* was carried out in Thiruvananthapuram, which is helpful for further study like epidemiological role in diseases [4]. Due to breeding habit of *Aedes* and *Culex* in wide range of container, elimination of such containers or alteration of breeding sites is way to control [5].

**Materials and Methods**

Breeding sites were surveyed from three sampling sites from chale (adjoining place), bhosale chouk and Isbavi. Larvae of mosquito were collected from 3 sampling sites during the period of February 2021 to September 2021. Larvae were collected with the help of pasture pipette. Collected larvae were brought to laboratory and preserved in 70% ethanol. All mosquito larvae were counted and identified by using pictorial key of Barraud P.J. 1934 [6]. Larval characteristic i.e. head, antennae, thorax, abdomen, siphon and saddle were used for identification. The morphology of the larvae were studied by using key of Barraud P.J. 1934 [6].

**Sampling Site 1: Chale**

- Latitude: 17.675133
- Longitude: 75.326767

**Sampling Site 2: Bhosale Chouk**

- Latitude: 17.6808°N
- Longitude: 75.3294°E

**Sampling Site 3: Isbavi**

- Latitude: 17.6753°N
- Longitude: 75.3190°E



Ditches



Plastic Container



Waste Tyres

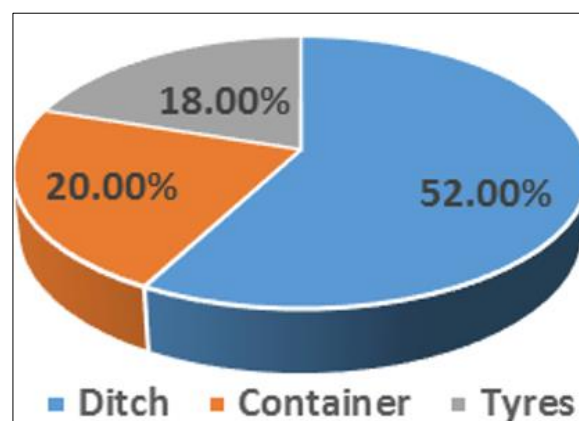


Diches

**Results and Discussion**

**Table 1:** Species diversity of mosquito larvae in breeding sites of Pandharpur.

Sr. No.	Sampling site	Location	Breeding Site	Type of Breeding Place		Identified Larvae	Number of Larvae
				Temporary	Permanent		
1.	Sampling site I	Chale	Ditch	-	√	<i>Culex geldius</i>	36
						<i>Culex tenuipalpis</i>	06
2.	Sampling site II	Bhosale chouk	Container	√	-	<i>Cuelx whitmorei (Giles)</i>	04
						<i>Aedes albopictus</i>	06
			Tyres	√	-	<i>Culiseta</i>	03
						<i>Aedes albopictus</i>	08
3.	Sampling site III	Isbavi	Ditch	√	-	<i>Culex whitmorei</i>	07
						<i>Culex geldius</i>	10
			Container	√	-	<i>Aedes albopictus</i>	10



**Fig 1:** Shows in 90 larvae of mosquitoes were collected from these sampling sites

During the study period larvae were reported in ditches, container and tyres of the three sampling sites. 90 larvae of mosquitoes were collected from these sampling sites. Larvae were detected in all breeding sites. Breeding sites are located mainly in the waste water, ditches, plastic barrel and tyres. The breeding sites surveyed at sampling site 1 are large pit (manmade) containing waste water from houses. These pit are circular having a length of 8X12 feet and 4 feet deep. These are permanent pits, water is available throughout the year. These were greatly infested by mosquito larvae. 40 larvae were collected from the breeding places. Collected larvae has short, fusiform, distinctly swollen in the middle respiratory siphon. These are belonging to Genus *Culex*. *Culex gelidus* (36), *Culex tenuipalpis* (06) were recorded. *Culex gelidus* were dominant in the sampling site 1 during the study period. The presence of vegetation and floating plants provide optimal breeding conditions by acting as food sources as well as shelter from predators, for mosquito species. Vegetation also creates stagnant conditions by decreasing the water flow [7].

The sampling site II and III are commercial cum residential area 'Bhosale chouk' located at Latitude: 17.6808<sup>0</sup>N and Longitude: 75.3294<sup>0</sup>E and 'Isbavi' located at Latitude: 17.6753<sup>0</sup>N and Longitude: 75.3190<sup>0</sup>E. Due to scarcity of water supply in the summer season peoples of these area have been using plastic barrel/container for water storage. Water is remain for 1 or 2 weeks in the container. All type of container were surveyed during the study period. *Culex whitmorei* and *Aedes albopictus* were predominantly found in the container. This was found to be the best breeding habitat for larvae. *Stegomyia* is medically important genus. It includes 19 species in India [8].

Waste tyres available in the mechanical shops also surveyed in the same sampling site II and III. During the study period *Culiseta*, *Aedes albopictus* and *Culex whitmorei* were found in the tyres. *Aedes albopictus* is another important dengue vector in rural areas. *Aedes albopictus* is a container breeder. It breeds in both natural and manmade habitat. It is primarily a forest fringe mosquito breeding in natural sites like rock pools, leaf axils, tee holes and cut bamboo stumps [9]. Though it breed in natural sites, during study period it is dominantly found in container. *Aedes albopictus* is the main spreader of arboviral infections like dengue and chikungunya [10]. The eradication of mosquito breeding container is essential for the effective control of larvae in the study area. The rapid detection of it, is due to storage of water in plastic containers [11].

## Conclusions

*Culex gelidus* was the major species found in the ditches and *Aedes albopictus* was the major species found in varied containers in study area. The distribution of *Aedes albopictus* is high in domestic containers therefore its role in widespread disease need to be studied.

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