

**THE GLOBE
PROGRAM**



Mosquito breeding site characterization (larval density, water quality, natural attractants) of Barangay Igang, Pototan, Philippines

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ABSTRACT

Mosquitoes are vectors that transmit pathogens causing diseases such as dengue and malaria. In the Philippines, 100,000 cases of dengue were recorded in the first 6 months of the year 2019. Pototan of Central Philippines has the most reported dengue cases. As a response, the mosquito habitats in one of the villages in Pototan were characterized based on the possible natural mosquito attractants as well as the mosquito larval density. Larval density and species were identified using the GLOBE Mosquito Protocol while the mosquito habitats were characterized based on the water quality and the plant species within the vicinity of the habitat. The dominant plant species were *Annona muricata* and *Dracaena reflexa*, both of which containing high phenolic content considered as strong mosquito attractants.

INTRODUCTION

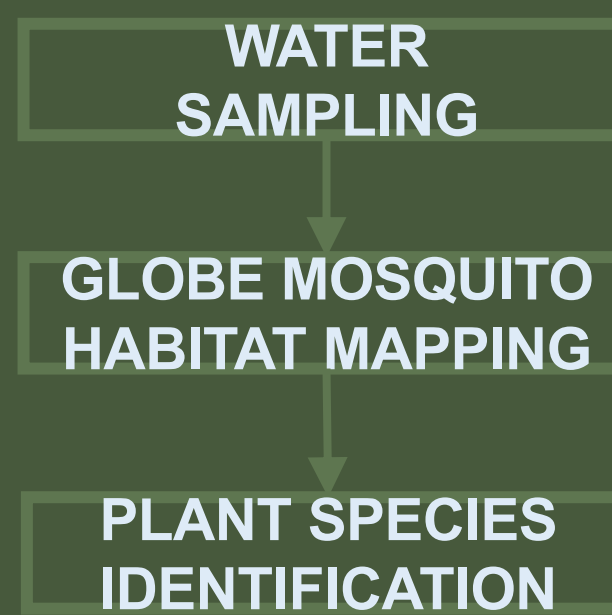
Barangay Igang, Pototan is a wide rural area characterized by abundant vegetation and farmland, which may potentially contain natural attractants and feeding sources that invite mosquitoes to oviposit in bodies of water nearby. Due to the frequency of dengue cases within the barangay, there is a need to assess the barangay's potential breeding sites and larval density.

RESEARCH QUESTIONS

- What mosquito species are abundant based on the larval density?
- What is the water quality of mosquito larval sources in the barangay?
- What plant species can be associated with the abundance of mosquito larvae? What are the attractant compounds present in the plant species?

METHODS

- 1 Water samples from the mosquito habitats were collected for larvae counting & water quality assessment (pH, salinity, conductivity).
- 2 Site coordinates, type of source, larval count, & species were recorded. Site & larvae photographs were uploaded to the GLOBE database.
- 3 Images of plants within the vicinity of the sites were taken to identify their species and determine the natural attractant compounds.



RESULTS & DISCUSSION

- Around 131 mosquito larvae were counted, in which 113 larvae were obtained from site 2, an artificial source. All the larvae were classified as either *Aedes aegypti* or *Aedes albopictus*, both major vectors of dengue. Thus, there is an increased number of reported dengue cases within the area.
- Site 2, containing most of the larvae, had a pH level of 4.78. This site also had the least oxygen & dissolved oxygen concentration. Most of the dissolved oxygen content & oxygen content were utilized by the larvae.
- Due to the abundance of plant species shown on the right, there is an abundance of mosquito larvae in the area. These plant species contain phenolic compounds that attract mosquitoes leading them to transform these places into their breeding grounds.

Larval species recorded from various sites.

Species	Site no.						
	1	2	3	4	5	6	7
<i>A. aegypti</i>	10	113	1	0	0	0	3
<i>A. albopictus</i>	0	0	0	0	2	5	0

Water quality of various sites.

Site no.	O ₂ gas conc. (%)	DO ₂ conc. (mg/L)	pH
1	17.32	6.24	7.43
2	5.31	1.91	4.78
3	16.90	6.07	7.60
4	15.78	5.67	7.34
5	15.20	5.48	7.21
6	17.40	6.25	7.60
7	17.75	6.36	8.80

Plant species containing attractants:



Annona muricata



Dracaena reflexa



Oryza sativa



Mikania micrantha



Ipomoea aquatica



Leucaena leucocephala

CONCLUSION

The presence of attractant-releasing plants resulted in the high larval density of mosquitoes, particularly *Aedes aegypti*, in Barangay Igang, Pototan. Phenolic compounds and amino acids attract mosquitoes to oviposit in breeding sites.

Water quality assessment could be added as an additional factor to record using the mosquito habitat mapper since the oxygen concentrations in the water samples decreased as the number of larvae in the habitat increased.