



# STUDY OF SPECIES, NUMBER AND WATER QUALITY OF MOSQUITO LARVAE IN DIFFERENT AREAS.

## A STUDY OF SPECIES AND NUMBER OF MOSQUITO LARVAE IN NA YONG AND PALIAN DISTRICTS, TRANG PROVINCE.

### Introduction

Mosquitoes are very important insects in public health problem. The mosquitoes are small insects that can be found all over the world, found mainly in tropical and warm regions (Usawadee Thavara et al., 2016). Mosquitoes are a type of blood-sucking insects. In addition to causing itchy wounds when it sucks blood, it can also be a carrier of many diseases to humans. Some diseases cause death. Examples of mosquito-borne diseases such as Malaria, Dengue, Encephalitis, Zika Fever, Chikungunya, Lymphatic Filariasis. (Boonterm Sangdit, 2017). At present, there are about 4,000 species of mosquitoes around the world, while in Thailand, there are about 450 species of mosquitoes, divided into 3 major groups: Toxorhynchitinae, Anophelinae and Culicinae (Usawadee Thavara et al., 2016). But the mosquitoes that are medically important and common in Thailand are: Aedes mosquitoes, annoying mosquitoes, tiger mosquitoes and Anopheles mosquitoes (Damrongphan Thongwat, 2017), which mosquitoes have a rapid reproduction rate. It is expected that the morbidity rate from Aedes mosquito-borne dengue fever in the country may increase (Department of Disease Control, 2021). And at present, there is no drug or vaccine that can be directly used to treat it (Bangkok Hospital Trat, 2019). The south is in the tropics. It is a good breeding ground for mosquitoes, so there is a risk of dengue fever. Therefore, the research authors are interested in studying and comparing mosquito breeding sites in different areas, namely mosquito larvae in the community area of Na Yong and Palian district to compare the water quality of mosquito breeding sites. Type and number of mosquitoes in each source.



### Data and discussion

	Aedes albopictus		Aedes aegypti	
	Na Yong district	Palian district	Na Yong district	Palian district
Number of residential houses surveyed	15	15	15	15
Number of houses where mosquito larvae were found	4	2	2	4
Number of breeding sites surveyed	46	25	46	25
Number of breeding sites where mosquito larvae are found	7	2	3	4
Mosquito larva index				
HI (%)	26.67	13.33	13.33	26.67
CI (%)	15.22	8.00	4.35	16.00
BI (%)	66.67	13.33	20.00	26.67

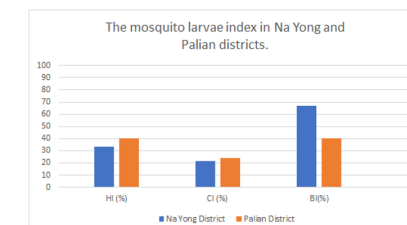


Figure 1 : The mosquito larva index in Na Yong District and Palian District.

	Na Yong district		Palian district	
	Na Yong district	Palian district	Na Yong district	Palian district
Number of residential houses surveyed	15	15	15	15
Number of houses where mosquito larvae were found	5	6	5	6
Number of breeding sites surveyed	46	25	46	25
Number of breeding sites where mosquito larvae are found	10	6	10	6
Mosquito larva index				
HI (%)	33.33	40.00	33.33	40.00
CI (%)	21.74	24.00	21.74	24.00
BI (%)	66.67	40	66.67	40

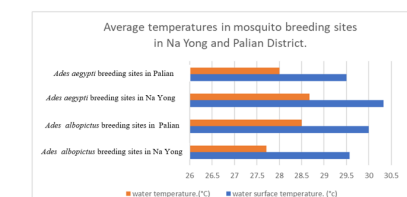


Figure 2 : Average temperatures in mosquito breeding sites in Na Yong and Palian District.

	Na Yong district		Palian district	
	Na Yong district	Palian district	Na Yong district	Palian district
Number of residential houses surveyed	15	15	15	15
Number of houses where mosquito larvae were found	5	6	5	6
Number of breeding sites surveyed	46	25	46	25
Number of breeding sites where mosquito larvae are found	10	6	10	6
Mosquito larva index				
HI (%)	33.33	40.00	33.33	40.00
CI (%)	21.74	24.00	21.74	24.00
BI (%)	66.67	40	66.67	40

(2) Water quality of breeding sites where each species of mosquito larvae were found : pH values and habitats of larvae in Na Yong and Palian districts. → From the study, water quality in various habitats of mosquito larvae in Na Yong and Palian districts, it was found that the pH of the habitats of the *Aedes albopictus* larvae, the *Aedes aegypti*, *Culex spp.* and *Toxorhynchites spp.* in the area Na Yong and Palian District were not significantly different from each other. (3) Surface water temperature in various habitats of mosquito larvae in Na Yong and in Palian district. → From the study, it was found that the surface water temperature habitat of the *Aedes aegypti* larvae, *Aedes albopictus*, *Culex spp.* and *Toxorhynchites spp.* Palian was higher than in Na Yong District and the sub-surface temperature of mosquito larvae habitat in Na Yong was higher than in Palian District. The study also shows the found and unfound mosquito larvae in various habitats in Na Yong and Palian District where the water temperature has similar values. (4) Aedes mosquito larvae index. → From the results of the study, *Aedes albopictus* and *Aedes aegypti* larvae were found in Palian district where the HI and CI values were higher than those in Na Yong district, where as the BI values were found in Na Yong that were higher than those in Palian district.

### Conclusions

From the study, it was found that in the area of Na Yong District, 4 types of mosquito larvae were found, namely *Aedes albopictus* larvae, followed by *Culex* larvae, *Aedes aegypti* larvae and *Toxorhynchites spp.*, respectively. In Palian district, 2 types of mosquito larvae were found, namely the most common *Aedes aegypti* larvae, followed by the *Aedes albopictus* larvae, the mosquito larva breeding sites for mosquito larvae were found. In Na Yong District, there are 7 sources, namely, coconut shells, rubber trays, broken plastic containers, tires, water tanks, water pipes (mortar) and waste bins. In Palian District, there are 4 breeding sites for mosquito larvae, namely water buckets, water tanks, coconut shells and tires. The pH water quality values according to various sources of mosquito larvae in Na Yong compared to Palian district, the pH values in Na Yong and Palian districts have no significant difference. The average surface water temperature of the mosquito larvae habitat in Palian was higher than in Na Yong district and water temperature of mosquito larvae habitats in Na Yong District was higher than that in Palian District.

From the study of species and number of mosquito larvae in Na Yong and Palian district, it was found that, in Na Yong district, the most common *Aedes albopictus* larvae were found. In Palian district, the most common *Aedes aegypti* larvae were found, which is classified as a moderate risk level to cause dengue, yellow fever and possibly a carrier of the Zika virus. The communities of both areas have been identified as having problems spreading at some point.

### Methods

- 1 Survey mosquito larva breeding sites in Na Yong and Palian districts.
- 2 Take a picture of the container/water source, measure water quality in all containers, both found and without mosquito larvae.
- 3 Study types and number of mosquito larvae samples obtained by washing with clean water.
- 4 Count the number of mosquito larvae collected in each water source using a dropper and taking notes.
- 5 Soak the mosquito larvae in 70% ethyl alcohol for further study and to maintain the condition of mosquito larvae.
- 6 Bring the mosquito larvae in 70% ethyl alcohol, distinguish the types of mosquitoes by using a microscope and CU SMARTLENS, observing the characteristics of the comb teeth and breathing tube of the mosquito larvae to identify the species and take notes.
- 7 Import mosquito larvae data into the GLOBE observer program.



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Authors : Miss Walailak Nuannom, Miss Supasson Tongaiab  
Wichienmatu School , Trang  
Advisor : Ms. Kwanjai Karnchanasrimek , Miss Julaluk Tulyakul  
Scientist : Mr. Sunan Kaenin