# URBAN MOSQUITO DIVERSITY AND POTENTIAL DISEASE RISK IN CHIANG MAI TOURIST AREAS IN 2025

Pattaraporn WISATBOON[1*], and Nattawut SAREEIN[2**]

[1]Environmental Science program, Faculty of Science, Chiang Mai University, Chiang Mai 50200, Thailand.
[2]Environmental Science Reserch Center, Faculty of Science, Chiang Mai University, Chiang Mai 50200, Thailand.

*Contact: pattaraporn_wis@cmu.ac.th **Corresponding author: nattawut.sar@cmu.ac.th

## Introduction

Urban tourist areas in Chiang Mai provide many potential mosquito breeding sites due to water containers, vegetation, and high human activity. Dengue fever remains an important public health problem in the region. However, information on mosquito diversity in tourist areas is still limited. Therefore, this study aimed to identify mosquito species and evaluate dengue transmission risk using the Container Index (CI).

## Methodology



**S1** Baan Kang Wat



**S2** One Nimman



**S3** Nimman Road



**S4** Open-air Market



**S5** Wat Ket Karam

- 5 Study points: Baan Kang Wat, One Nimman, Nimman Road, Open-air Market, Wat Ket Karam
- From March to October 2025

### Adult Mosquito Collection



- 3 days per month and 3 rotation points per site.
- Use BG trap and BG lure for mosquito collection.
- Collected mosquitoes were refrigerated for 15 minutes, then sorted by species and sex.
- Species identification was performed under a microscope using morphological characteristics based on the *Illustrated Keys to the Mosquitoes of Thailand.*

### Larval Collection



- All accessible water-holding containers were inspected.
- Containers classified as larva-positive or larva-negative.
- Larvae were collected using a dropper or pipette and placed into labeled containers for further identification.
- Container Index (CI) calculated following WHO guidelines.







**Figure 1**. Mosquito larvae rearing process for species identification.

## Results & Discussion

- Six mosquito species were identified in larval surveys: *Aedes aegypti, Culex quinquefasciatus, Culex vishnui, Culex gelidus, Armigeres subalbatus, and Toxorhynchites sp.*
- Six species were recorded in adult collections, including *Aedes aegypti, Aedes albopictus, Culex quinquefasciatus, Culex vishnui, Culex gelidus, and Toxorhynchites sp.*



*Ae. aegypti*



*Cx. quinquefasciatus*



*Cx. vishnui*



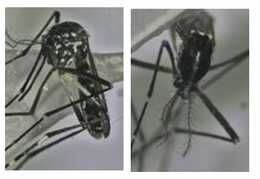
*Cx. gelidus*



*Armigeres subalbatus*



*Toxorhynchites sp.*



*Ae. albopictus*

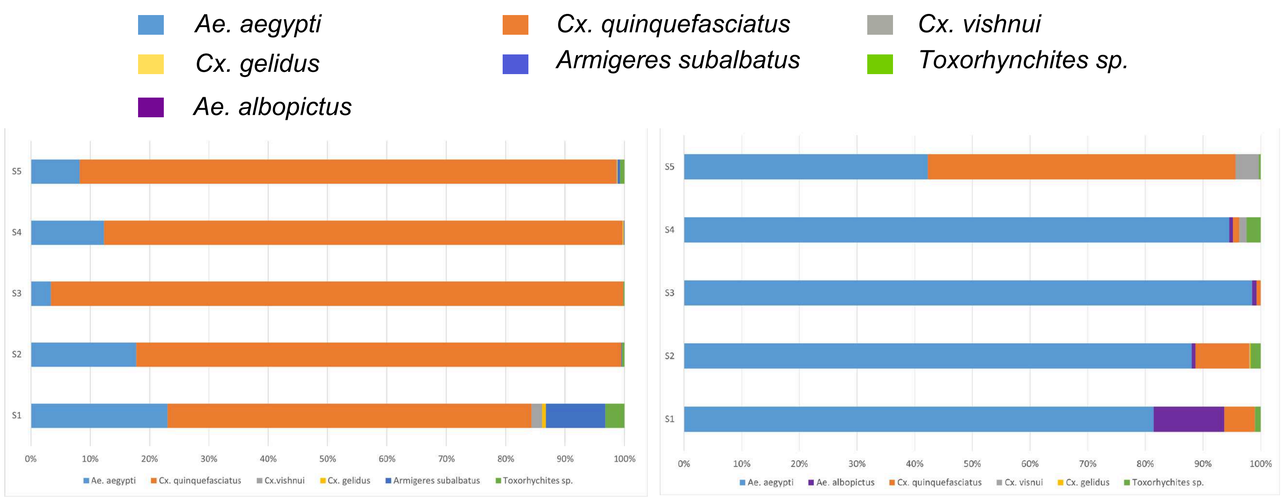



**Figure 2.** Percentage of Adult Mosquito species

**Figure 3.** Percentage of Larval species

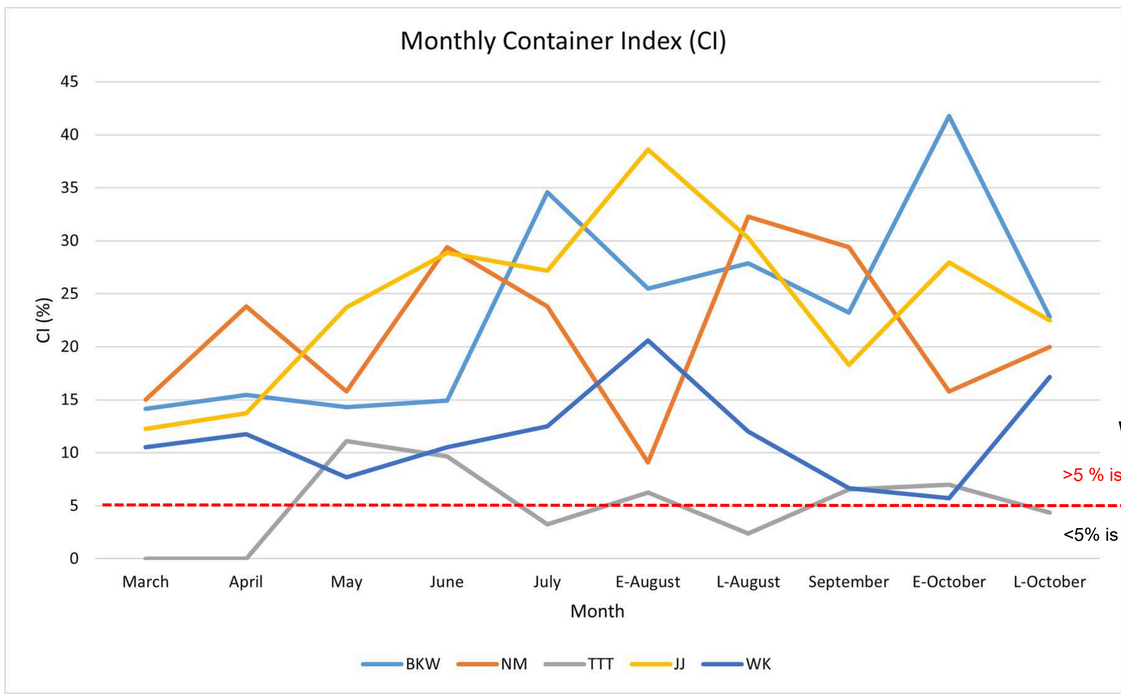



**Figure 4.** Details of Container Index (CI) from each months

*Ae. aegypti* was dominant in larval surveys, while *Cx. quinquefasciatus* was dominant in adult collections(Figs.3 and 4). The Container Index (CI) increased during the rainy season, with higher values observed at Sites 1, 2, and 4, and lower values at Sites 3 and 5(Fig.4). The CI values exceeding the risk threshold suggest a potential dengue transmission risk, emphasizing the need for continued surveillance and improved management of water containers in tourist areas and targeted vector control, particularly in highly visited tourist and market areas, to reduce future mosquito-borne disease risks in Chiang Mai City.

## References

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