FACULTY OF SCIENCE
CHIANG MAI UNIVERSITY

Title : Assessment of Urban Mosquito Diversity in Tourist Hotspots of Chiang Mai, Thailand

Author(s) :   1.   Yelim Lee   Student ID :   640515511

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Advisor(s) :   1.   Dr. Nattawut Sareein

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ABSTRACT

Mosquitoes are nominated as the deadliest animals in the world due to their transmission of vector-borne diseases. Increasing tourism and climate change expand the transmission cycle, becoming an international concern. Surveillance of mosquito diversity is essential for disease control since different mosquito species can transmit several diseases. *Aedes aegypti,* a carrier of dengue fever, is risking the public health of both locals and tourists in South East Asia. To identify and monitor urban mosquito diversity in tourist hotspots of Chiang Mai, Thailand, mosquitoes were collected from April to October 2024 in 5 study sites by using BG traps. As a result, 6 mosquito species were identified across the study sites, i.e., *Ae. aegypti, Armigeres subalbatus, Culex gelidus, Cx. quinquefasciatus, Cx. vishnui, and Toxorhynchites* mosquitoes. The highest diversity of mosquito species was observed at Site 1, which had five species in total and was closest to the mountains. In contrast, Sites 3 and 4 exhibited the lowest mosquito diversity, each with three species. These findings may indicate that higher native vegetation cover, providing greater habitat complexity, leads to greater mosquito diversity. The number of mosquitoes increased as the rainy season approached, suggesting that the rainy season provides more suitable habitats for mosquitoes and aligns with a high dengue case period. Furthermore, all mosquito populations showed a significant positive correlation with building area and a significant negative correlation with road or parking areas. Additionally, an insignificant negative trend with green areas was observed. These findings may indicate that major mosquito species (i.e., *Cx. quinquefasciatus* and *Ae. aegypti*) preferred urban habitats, which were less diverse and had more artificial containers. Understanding the relationship between mosquito diversity, urbanization, and environmental factors is crucial for developing disease control measures. Since vector mosquitoes prefer urban environments due to their preferred hosts and breeding habitats, enhancing the management of

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green spaces and minimizing artificial breeding sites can help reduce health risks associated with vector-borne diseases.