

LARVAL HABITATS AND DISTRIBUTION PATTERNS OF *AEDES AEGYPTI* (LINNAEUS) AND *AEDES ALBOPICTUS* (SKUSE), IN THAILAND

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Abstract. This study was conducted to survey larval breeding habitats and to obtain larval abundance during the dry period covering all 5 geographical zones of Thailand. Our results indicated *Aedes aegypti* is prevalent all over the country, whereas *Aedes albopictus* is more restricted to the remote area of the south. Water storage containers, especially water jars, served as a main larval breeding habitats of *Ae. aegypti*, whereas broken cans and plastic containers are considered primary breeding sites for *Ae. albopictus* during the dry period. In addition, *Aedes* larval indices, container index (CI), house index (HI), and Breteau index (BI) were measured. CI and HI values from the central part were significantly higher than those from other areas ($p < 0.01$). BI values of all collection sites were greater than 50 (a maximum BI value accepted by the Ministry of Public Health, Thailand). In brief, *Ae. aegypti* and *Ae. albopictus* populations heavily infested many towns and residential areas of the country. Drought could not limit the density of *Aedes* mosquitos in Thailand. Systematic vector control and vector surveillance programs by public health organizations, if practical, should be continuously conducted to reduce or prevent dengue risk.

INTRODUCTION

Dengue hemorrhagic fever (DHF) represents one of the most important arthropod-borne viral diseases in the world and commonly occurs throughout Asia. An outbreak started in the Philippines in 1953, subsequently in Thailand with 150,000 to 200,000 reported cases (CDC, Ministry of Public Health, Thailand, 1978). During the last 2 decades, dengue outbreaks in Thailand have occurred periodically. The rate of spread of dengue virus in Thailand has comparatively increased and disease transmission remains prevalent all over the country. In addition, there has been a significant increase in the human population, demographic movement of the people and accommodation-based tourism facilities. These changes can have a great impact on the densities of *Aedes* mosquitos, by creating more larval breeding habitats for dengue mosquitos.

Only 2 species of *Aedes* mosquitos, *Ae. aegypti* (Linnaeus) and *Ae. albopictus* (Skuse) are known to be important dengue virus vectors in Thailand (Gould *et al*, 1968; Russell *et al*, 1969). *Aedes aegypti* is more prevalent around human dwellings and is a principal vector in urban zones ie Bangkok, whereas *Ae. albopictus* serves as an important vector in the rural and undeveloped areas (Halstead, 1966; Scanlon, 1966; Pant *et al*, 1973; WHO, 1986; Bhamarapavati, 1990; Thavara *et al*, 2001). *Aedes aegypti* prefers the clean water found in many types of domestic containers inside or near human dwellings, whereas *Ae. albopictus* is more likely to be found in natural containers or outdoor man-made habitats containing a greater amount of organic debris (Rattanaarithikul and Panthusiri, 1994). The latter species is much more prevalent in the rural and remote areas of southern Thailand than another parts of the country. Recent observation suggested that *Ae. albopictus* is now invading many residential habitats in urban zones. Although different, the preferred breeding habitats of these 2 species slightly overlap (Gould *et al*, 1970; Thavara

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