

Vithee Muenworn 2006: Behavioral Responses of *Anopheles maculatus* Group in Relation to Repellency Effects of Selected Insecticides.
Master of Science (Entomology), Major Field: Entomology, Department of Entomology. Thesis Advisor: Associate Professor
Theeraphap Chareonviriyaphap, Ph.D. 64 pages.
ISBN 974-16-2457-3

Behavioral responses of wild-caught populations of *Anopheles maculatus* and *Anopheles sawadwongporni* exposed to DDT (2 g/m^2) and permethrin (0.5 g/m^2) were observed using an excito-repellency test system. Numbers of mosquitoes that escaped following contact irritancy assays with DDT and permethrin were significantly higher than those in noncontact repellency assays for both species ($P < 0.05$), except with DDT against *An. sawadwongporni* ($P > 0.05$). In contact trials, patterns and rate of escape were significantly greater in both species when exposed to permethrin than DDT. Escape responses were statistically significant in all noncontact/control paired tests ($P < 0.05$), except for *An. maculatus* against DDT.

Five species of the *An. maculatus* group, *An. maculatus*, *An. sawadwongporni*, *Anopheles notanandai*, *Anopheles dravidicus* and *Anopheles willmori* were collected from Chiang Mai, Chantaburi, Tak, Surat Thani and Kanchanaburi Provinces, Thailand. Blood feeding cycles and host preferences for *An. maculatus* and *An. sawadwongporni* were observed in Sai Yok District, Kanchanaburi province. Cattle-baited collections exceeded two types of human-bait collection methods for *An. sawadwongporni*, *An. maculatus*, and *An. notanandai*.

In addition, genetic analysis using ITS2 sequencing data of four different strains of *An. maculatus* collected from Pelabuhan Ratu (western Java) and Purworejo (central Java) in Indonesia, Timor timur selatan in Timor-Leste and Chiang Mai Province in Thailand, were analyzed with lengths of 327, 332, 322 and 322 base pairs, respectively. The ITS2 sequences from four collection sites were similar GC content with 57%. The ITS2 sequence of *An. maculatus* from Purworejo showed 88% identity compared with ITS2 sequences of *An. maculatus* from the other 3 sites. This preliminary study indicates the strain isolated from Purworejo may be a new species awaiting formal taxonomic description.

Student's signature

Thesis Advisor's signature