Umarin Boonkue 2014: Identification of *Anopheles cracens, An. scanloni and An. nemophilous* in Dirus Species Complex in Thailand Using Allele-Specific PCR. Master of Science (Genetics), Major Field: Genetics, Department of Genetics. Thesis Advisor: Assistant Professor Uraiwan Arunyawat, Dr.rer.nat. 121 pages.

Anopheles dirus species complex is widely distributed as primary malaria vectors in Thailand and Southeast Asia region. Morphological identification is very problematic for the Dirus complex species because of their similar morphologies among the sibling species, which usually lead to species misidentification. In this study, allele-specific PCR was developed to identify three species within *Anopheles dirus* complex group. The allele-specific primers were designed based on the nucleotide polymorphisms in mitochondrial *cytochrome oxidase subunit I* sequences. The results showed that these primers clearly amplified *Anopheleles cracens, An. scanloni* and *An. nemophilous* for different PCR products size of 236, 338 and 527 base pair, respectively. The allele-specific PCR was tested on 105 mosquitoes of the *An. dirus* species complex from five locations including Chiangmai, Kanchanaburi, Ranong, Satun and Songkla provinces, collecting from August 2011 to January 2013. This result suggested that the allele-specific PCR could be correctly and effectively identified the three members of *An. dirus* species complex.

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