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NGO THI HUONG: A SIMPLE PCR-BASED METHOD FOR IDENTIFICATION OF THE *Anopheles dirus* SIBLING SPECIES. THESIS ADVISORS: SAKOL PANYIM, Ph.D., PIENGCHAN SONTAYANON, M.Sc, ALBERT KETTERMAN, Ph.D. 126 p. ISBN 974-664-614-1

*Anopheles dirus* is one of the major malaria vectors in Thailand and Southeast Asia. Based on the species-specific sequence information available from *Anopheles dirus* species A, B, C and D found in Thailand, specific primers were designed. A PCR protocol was optimized to obtain products of 120 bp, 75 bp, 60 bp and 172 bp for species A, B, C and D, respectively. A simple PCR-based method using a cocktail of four primer sets to identify these *Anopheles dirus* sibling species was developed. This method is very sensitive as only a small portion of mosquito was required allowing the rest of the mosquito to be used for other analyses. Specimens kept for at least 14 years could be analysed unambiguously from either larvae or adult stage. This method is advantageous over other PCR-based methods for identification of malaria vectors because it does not require any specific DNA extraction. A mosquito specimen was homogenized in 1x PCR buffer, then the supernatant directly used for PCR identification, allowing a large number of samples to be processed at the same time. It provides a simple and rapid practical method for screening *Anopheles dirus* species, which is essential in epidemiological studies.

In conclusion, it is worth observing that the above method could also be used to identify unknown *Anopheles dirus* species collected from several malarial endemic regions in central Vietnam, which have not been previously characterized. Most of them were identified as species A.