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Ecotope-based entomological surveillance for determining potential transmission of Malaria and Filariasis in Thailand

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cotope-based entomological surveillance (EES) encompasses system approaches: (i) landscape ecologic strategies and Egeographical information system (GIS) tools applied to assess land use/land cover changes attributed to human settlement and activities influencing infestation or re-infestation of mosquito vectors and to determine their magnitude and distribution whether they carry infection at specific locations and times to which human risk behaviors are related; (ii) entomologic strategies and tools for collecting indoors/outdoors, identifying taxonomically and xenomonitoring both dissectedly and molecularly parasite infection; (iii) molecular evolution strategies and molecular marker-based PCR for detecting and identifying both single and multiple clonal parasite infections carrying the genotypes. However, the validated EES requires both related and timely epidemiologic data/information obtained from surveillance and reporting systems. The study objective was to determine the potential transmission of malaria and filariasis in transmission areas infested with its mosquito vectors: The malaria ecotopes in Kanchanaburi or Trat covering a catchment area of 1 km² and the filariasis ecotopes in Suratthani a covering 2 km area. For malaria, Anopheles dirus, Anopheles maculates, and Anopheles aconitus played role in transmission, showing positive man biting rate (PMBR) per ecotope, 0.03 for dry and 0.06 wet seasons. Moreover, these vectors carried multidrug resistant Plasmodium vivax malaria parasites. For filariasis, potential transmission by Armigeres subalbatus exhibited average PMBR per ecotope, 0.03 for dry and 0.08 for wet seasons, whereas lowland ecotope as control had no potential of transmission. This study strongly suggests that the developed EES provides the proof of the potential transmission of malaria and filariasis and hence establishing and monitoring the infection pockets for both diseases.

Biography

Prapa Sorosjinda-Nunthawarasilp received her PhD in Tropical Medicine at Mahidol University. She has been pursuing her research areas of tropical diseases, parasitology, and entomology. In particular, she explores deeply in subject areas of mosquito-borne diseases, the multi drug resistant malaria parasites in *Anopheles* vectors and vector population dynamic and behaviors. She contributes the significant of research publications and reports to both academic and scientific research communities. She corroborates with researchers from renowned universities, based on contributing the novel '4E' concepts of the land ecology, epidemiology, entomology and molecular evolution of vector-borne diseases.

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