



Emergence of simian malaria in Sabah, Malaysia Tock H. Chua

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In the 90's, *Plasmodium falciparum* and *P. vivax* were the dominant malaria parasites reported in Sabah. Due to the concerted efforts of the government to control malaria, malaria cases due to these species had decreased over the years. However, *Plasmodium knowlesi*, a simian malaria parasite from the long-tailed macaque monkey, has now become the dominant species. *Anopheles* mosquitoes of the Leucosphyrus group are the bridge vectors between the macaques and humans. Androgenetic actions such as deforestation for agriculture and other changes in land-use have contributed to the high infection of *Plasmodium knowlesi* especially in areas near the forests and oil palm estates. This has affected the Malaysian national malaria elimination program. We conducted sampling of *Anopheles* mosquitoes using human landing catch in various sites in Kudat and other areas from 2013-2017, to study the mosquito population changes over time and in different habitat types. *Anopheles* mosquitoes were dissected as well as tested with PCR for presence of *Plasmodium* parasites. The incriminated vector, *An. balabacensis*, demonstrated early biting activity and feeding predominantly outdoors in the early evening between 1800-2000 hrs. This suggests that current vector control tools such as indoor residual spraying and insecticide treated bed-nets may not be as effective as we wish. However computer models suggest that these methods are sufficient to reduce the risk of transmission to humans. Our data shows that *An. balabacensis* is found more in peridomestic area than inside the house, and more in forested areas and oil palm estates.

Biography: Tock Chua has completed his PhD at Imperial College London, specialising in insect ecology. He is now a research fellow at Faculty of Medicine and Health Sciences, Universiti Malaysia Sabah. He has published more than 90 papers in various peer-reviewed international journals.



1. Comparative Evaluation of Two Commercial Real-time Pcr Kits (Quantifast™ and Abtes™) for the Detection of Plasmodium Knowlesi and Other Plasmodium Species in Sabah, Malaysia.
2. Defining the ecological and evolutionary drivers of Plasmodium knowlesi transmission within a multi-scale framework.
3. Effect of different habitat types on abundance and biting times of Anopheles balabacensis Baisas (Diptera: Culicidae) in Kudat district of Sabah, Malaysia.
4. Vector compositions change across forested to deforested ecotones in emerging areas of zoonotic malaria transmission in Malaysia.
5. Neonatal melioidosis case reports—Lessons learned.

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