

A protocol and training guidelines for mosquito sampling in remote areas with limited power supply

ABSTRACT

Mosquito-borne diseases pose a significant threat in many Southeast Asian countries, particularly through the sylvatic cycle, which has a wildlife reservoir in forests and rural areas. Studying the composition and diversity of vectors and pathogen transmission is especially challenging in forests and rural areas due to their remoteness, limited accessibility, lack of power, and underdeveloped infrastructure. This study is based on the WHO mosquito sampling protocol, modifies technical details to support mosquito collection in difficult-to-access and resource-limited areas. Specifically, we describe the procedure for using rechargeable lithium batteries and solar panels to power the mosquito traps, demonstrate a workflow for processing and storing the mosquitoes in a -20 °C freezer, data management tools including microclimate data, and quality assurance processes to ensure the validity and reliability of the results. A pre- and post-test was utilized to measure participant knowledge levels. Additional research is needed to validate this protocol for monitoring vector-borne diseases in hard-to-reach areas within other countries and settings.