

Species Composition and Plasmodium Infection Rates of Anopheles Mosquitoes in Kilosa, Tanzania

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Abstract : Background: The fluctuating composition of mosquito species over time, driven by ecological changes in specific regions, plays a pivotal role in the transmission of malaria. Grasping these dynamics is fundamental for establishing a baseline understanding and is crucial for identifying transmission patterns. This knowledge is essential in devising effective strategies for managing and controlling vector populations. Our study focused on examining the species composition and Plasmodium infection rates of malaria vectors, aiming to enhance the health and well-being of communities affected by malaria. Methods: Species composition was determined through a cross-sectional collection of mosquitoes, conducted once in the village, in four selected villages of Kilosa district, Tanzania. Mosquitoes were collected indoors and outdoors using CDC light traps. A sub-sample of all collected mosquitoes was subjected to PCR identification and assayed for Plasmodium porozoites. Results: A total of 6493 female Anophelines mosquitoes were collected, of which eight species were identified as Anopheles gambiaes.l., An. funestus group, An. coustani, An. pharoensis, An. squamosus, and An. rufipes. The abundance of the Anopheles gambiaes.s.and An. funestuss.s. varied with location and village. A total of 5 sporozoite-positive mosquitoes were found, of which 4 were An. funestuss.s. and 1 was An. gambiaes.s. Conclusions: Anopheles gambiaes.s.and An. funestuss.s. were identified as the most abundant malaria vectors, respectively. Sporozoite analysis indicated this for An. funestuss.s. contribute to most of the malaria transmission in the area. Further studies are required to assess the role of seasonal shifts in vector abundance, insecticide resistance and malaria transmission of the vectors.

Keywords : mosquito, composition, malaria, sporozoites

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