146. Development of a viable laboratory colony rearing procedure for *Anopheles arabiensis* infected with *Microsporidia mb*

Esther Mwaura[1]

[1]Department of Biological Sciences, Meru University of Science and Technology

Corresponding author email: estherwairu20@gmail.com

Subtheme: Pure and Applied Sciences for Climate Action

Abstract

Malaria continues to be a significant global health challenge causing millions of infections and deaths each year. The human population in Africa bears the highest malaria disease burden which is approximately 95% of the total number of cases and deaths. Various vector control strategies have been implemented to control transmission which includes; use of Insecticide-Treated bed Nets (ITNs), Indoor Residual Spraying (IRS) and Larval Source Management but resistance to insecticides still poses challenges. There is need to explore alternative methods to overcome the limitations posed by insecticide resistance. Recent studies indicates that a symbiont of Anopheles mosquitoes, Microsporidia MB exhibits a significant ability to block malaria transmission particularly in Anopheles arabiensis, which is the predominant member of the Anopheles gambiae species complex in many active transmission areas of Eastern Africa. Microsporidia MB is transmitted horizontally through mating and vertically from mother to the offspring. Microsporidia MB infection has been shown to improve Anopheles fitness. These characteristics make Microsporidia MB a promising candidate for developing a symbiont-based strategy to block malaria transmission. Currently, research relies on field collected mosquitoes. The study aim is to develop a viable laboratory colony- rearing procedure for Anopheles arabiensis infected with Microsporidia MB. The specific objectives are (i) to determine the prevalence and density of Microsporidia MB in successive generations of mosquitoes collected in the field and reared in laboratory (ii) to determine the fitness trends of Microsporidia MB infected mosquitoes in successive generations reared in laboratory and (iii) to evaluate the effects of different adult/sugar diets on the fitness of Microsporidia MB positive mosquitoes reared in laboratory. The experiment is being ICIPE iTOC-Mbita. By integrating Microsporidia MB infected mosquitoes with other strategies such as bed nets, insecticide residual spraying and larval source management, we can maximize the impact of vector control on malaria transmission thus leading to a malaria free nation.

Keywords: *Microsporidia MB, Malaria, successive generations, Vector control measures, Transmission*