

ABSTRACT

Vector-borne diseases are becoming major health problem among communities living within major rivers of Africa. The major objective of this study was to determine the presence, abundance and distribution of mosquito larvae on the Mara River Basin, Kenya and Tanzania. The specific objectives were, 1) to determine the presence, abundance and distribution of malaria and non-malaria transmitting mosquito larvae on the Mara River, 2) to determine the presence, abundance and distribution of mosquito larvae predators and their relationship with mosquito larvae abundance and distribution on the Mara River, 3) to characterize different mosquito larvae habitats and determine how mosquito larvae and their predators prefer these habitats on the Mara River, 4) to determine the relationship between water physico-chemical parameters and the abundance of mosquito larvae and predators on the Mara River. In this cross-sectional survey, each identified habitats was dipped 20 times using standard dipper. Water physico-chemical parameters were determined using a multi-parameter-YSI meter, while a D-frame sampler was used to sample predators. The collected mosquito larvae and their predators were identified using standard keys. Mean mosquito larvae and predators per habitat types were compared using ANOVA, while relationship between mosquito larvae, predators, and physico-chemical parameters was evaluated using Generalized Linear Model (GLM). In total, 4,001 mosquito larvae were captured. *An. arabiensis* (25.9%) and *An. gambiae* s.s (24.3%) were the most dominant. Of the 297 predators captured, 54.2% of them were Hemiptera, 22.9% Odonata and 22.9% Coleoptera. Drying stream contained majority of mosquito larvae and their predators. A relationship between Dissolved Oxygen (DO) [$Z=3.34$, $p\leq 0.001$], temperature ($Z=2.75$, $p\leq 0.001$), turbidity, $Z = -3.65$, $p\leq 0.001$) and mosquito larvae ($Z=6.49$, $p\leq 0.001$) and predators were observed. Presence, abundance and distribution of mosquito larvae along the Mara River were confirmed. The three predator Orders; Hemiptera, Odonata and Coleoptera were captured in different habitats. Drying stream accounted for majority of mosquito larvae and their predators. A relationship between DO, temperature, turbidity, mosquito larvae and their predators was observed. Presence of vectors and non-vectors on the Mara River calls for their immediate control and education to help curtail the insurgent of vector-borne diseases in the area. Identification of indigenous predators is important in local vector control. Vector control program should be emphasized during dry period. Abiotic factors play significant roles in abundance and distribution of larval mosquitoes and their predators and should be manipulated to enable effective design for integrated vector control program within the Mara River basin.