

Malaria continues to be a major cause of morbidity and mortality in Kenya, and is a serious threat to the social and economic advancement of this country. This research was designed to focus on the influence of nutritional status of a breeding habitat on the body size of *An. gambiae s.l.* and *An. funestus* and on the transmission of malaria parasites *Plasmodium falciparum* along the Kenya coast. The study was conducted from May to October 2001. Adult mosquitoes were collected inside houses by use of Pyrethrum Spreadsheet spray collection (PSC) while the mosquito larvae were collected by use of standard dipping technique. Cages were mounted on ten habitats that were positive for anophelide larvae in stream pools along Jaribuni River and the emergent mosquitoes collected daily. The wing size was determined by microscopy and used as a proxy measure of the body size of the mosquitoes. These habitats were characterized for various environmental and chemical variables. The influence of the nutritional status of the breeding habitat on the body size of the emergent mosquitoes was determined by assessing the body size of the emergent mosquitoes and comparing this with the environmental and chemical variables.

A total of 1,426 *Anopheles* larvae were collected, out of which 86.54% (n=1,234) were *Anopheles gambiae s.l.*, 11.99% (n=171) *An. funestus* and 1.47% (n=21) other *Anopheles*. Only temperature was significantly associated with the abundance of the anopheline larvae ($F(1,29)=5.225$, $p=0.034$) whereas the others environmental and chemical parameters were not significant. A total of 171 emergent *An. gambiae s.l.* wings were measured in which the mean wing length was 3.01mm. The physicochemical parameters were assessed for their association with the wing length of *An. gambiae s.l.* from the cages and only chlorophyll a was found to be associated with wing length of the emergent mosquitoes. A total of 1,715 wild caught anopheline mosquitoes were collected of which 866 (50.50%) were *An. gambiae s.l.* and 849 (49.50%) were *An. funestus*. The mean wing length for *An. gambiae s.l.* was 2.94mm; (95% CI 2.91-2.96) and that of *An. funestus* was 2.50 mm; (95% CI 2.48 - 2.51). The overall *Plasmodium falciparum* sporozoite infection rate was 12.36% for *An. gambiae s.l.* and 6.48% for *An. funestus*. The results indicate that there was no significant difference between the small or big *An. gambiae s.l.* and *An. funestus* ($\chi^2 = 0.66$, $p=0.42$; $\chi^2 = 1.31$, $p=0.25$, respectively).

The results showed that the size of the *Anopheles* mosquitoes did not affect the sporozoite rate. The temperature was the only variable that influenced the abundance of mosquito larvae. In conclusion, the findings of this study show that for effective control of malaria vectors along the Kenyan coast, all habitats should be targeted indiscriminately. In this area, all adult *An. gambiae s.l.* and *An. funestus* are capable of transmitting malaria despite their body size. For effective management of malaria vectors, control should be leveled to all habitats as well as to the adult mosquitoes