

Identification of kairomones mediating interactions of the malaria vector *Anopheles gambiae* with its host plants

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Malaria remains a major health problem in Africa, with *Anopheles gambiae* Giles as the principle vector. Plant nectar feeding forms an integral part of the vectorial capacity of this mosquito species, yet paucity of information on the nature of this behavior persists. While it is recognized that olfactory cues play an important role in mediating orientation and attraction of mosquitoes to host plants as sources of sugar, little effort has been made to identify the kairomones involved in this behavior. This study sought to investigate the effect of *Plasmodium falciparum* Welch infection on the mosquitoes-plant interactions and to identify kairomones involved in mediating the interaction with selected host plants. More than 60% of uninfected, oocyst-stage and sporozoite-stage *Plasmodium*-infected *An. gambiae* mosquitoes responded to plant odours in the dual choice olfactometer with a significant increase in probing response following infection with both stages of the parasite. The interaction between the infection status and the plant species was significant for oocyst-stage and sporozoite-stage *Plasmodium* infected mosquitoes towards *Parthenium hysterophorus*. Further analysis revealed that the vectors ingested plant sugars as well as secondary metabolites. A total of five terpenes and four aldehydes were identified as electrophysiologically active. A blend of these terpenes elicited optimal attraction at a lower dose (2ngl~g) while aldehydes yielded an optimal response at a higher dose. (8ngl~g). However, when both terpenes and aldehydes were blended together their natural ratios, a much lower optimal dose of 1 ngl~g was obtained. These findings confirm the significance of plant odours in the ecology of the malaria vectors.