

Monitoring interactions of female *Anopheles gambiae* s.s. giles with insecticide-treated nets using a wind tunnel set-up

Monitoring of interactions of *Anopheles gambiae* S.S. females with Insecticide Treated Nets (ITNs) was carried out using a wind-tunnel where air flow was controlled, enhancing the ability to characterize the behavioral mechanisms mediating ITN effects in the presence of simulated host cues. Detailed behaviors in a pull-push situation of permethrin- and deltamethrin-impregnated ITNs versus carbon dioxide, lactic acid and body heat source were made. Each female mosquito was introduced in the arena during the last 2 hour of photophase and observed continuously for 30 minutes. Frequencies, durations, and locations of behavior were recorded using the Observer software (Noldus, <http://www.noldus>). Comparisons for untreated and fully-treated Permanet, and Olyset ITN screens at the upwind end of the wind tunnel were made. When the upwind screen contained Permanet, females on average spent 48% of the total time sitting, of which 26% occurred on the upwind screen. When Olyset was present, females spent 42% of the total time sitting, of which 28% was spent on the upwind screen. The overall transition and kinematic analysis results show neither Permanet nor Olyset diminished the frequency of flying upwind and subsequent behaviors in air flowing over these insecticides implying the absence of repellency