Abstract

Ultrasound is detected by the female Anopheles gambiae using its antenna, evoking either an attractive or repulsive response. Electronic mosquito repellents which exploit this concept in attempt to control malaria, have shown only 20 % effectiveness in repellence. The 112 Avisoft and 702 digital recorders were used to record sounds of Coleura afra and Amolops tormotus respectively. The sound of C. afra and A. tormotus were recorded, combined and filtered using the Avisoft software. The startling effect of the combined sound on female A. gambiae and the frequency range of optimum startle response were determined in this study. A bioassay was set up with 3-4 day old female A. gambiae exposed to 10-34 kHz, 35-60 kHz and 61-90 kHz frequencies of combined sound, total activities and behavioural responses observed and noted. The female A. gambiae were significantly startled by the 10-34 kHz combined predator sound triggering evasive behavioural responses in 30 % of the mosquitoes. An antenna erection of 58.5^{oo} besides secondary effects like physical injury, unusual rest and movement, fatigue and falls; attributed to stress on the nervous system and fear of predation was observed. The combined ultrasound effectively repels the female A. gambiae.