

## Abstract

The wide bandwidth EMR ultrasound, exploited in mosquito repellency, yielded only 20 % effectiveness. Due to this wide bandwidth, ultrasound from *Anopheles tomentosus* and *Culex fatigans*, mosquito predators, was investigated. The sound was recorded, filtered and analysed by Avisoft software; transmission parameters determined and compared with those of EMR. Spectrogram analysis showed harmonics, FM and CF components. The fundamental frequency of *A. tomentosus* and *C. fatigans* sound was 5.371 kHz and 6.836 kHz respectively. The bandwidth of unfiltered sound of *A. tomentosus* and *C. fatigans* was 10.98 kHz and 17.71 kHz respectively. The maximum peak amplitude of unfiltered sound of *A. tomentosus* and *C. fatigans* was 135.19 dB SPL and 134.97 dB SPL; maximum acoustic energy was 19.57 Pa<sup>2</sup> s and 35.80 Pa<sup>2</sup> s respectively. Maximum acoustic energy of *A. tomentosus* and *C. fatigans* sound was 10.843 Pa<sup>2</sup> s and 14.857 Pa<sup>2</sup> s recorded in 35-60 kHz and 10-34 kHz ranges respectively. Optimum acoustic parameters included 58.5 kHz peak frequency, 12.32-10.84 Pa<sup>2</sup> s acoustic energy, 19.40-19.85 kHz bandwidth, 55.13-55.48 kHz and 34.66-44.26 kHz as mean maximum and minimum frequency respectively, 134.08-134.28 dB SPL peak amplitude and 132.06-133.27 dB SPL minimum peak amplitude; bandwidth significantly narrowed from EMR. These parameters are critical in realizing effective EMR.