

# **A passive odor baited device for controlling anopheles arabiensis mosquitoes**

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Outdoor mosquito biting is becoming more common in areas where current strategies for vector control, LLIN and IRS have been applied intensively. This poses a great public health burden especially in Africa. The study was carried out to design a prototype of passive and portable outdoor host seeking device (POHD) baited with synthetic attractive blends, source of CO<sub>2</sub> and bioactive agent to attract and kill outdoor biting malaria vectors. Specifically, the study aimed to: (i) Design and evaluate the efficacy of the POHD with their necessary cues; (ii) The synergistic effect of CO<sub>2</sub> to BG lures and light source using Suna trap; (iii) The optimization of the passive host seeking device with different placement of attractants and bioactive; (iv) The effect of attractive blend types, their formulation and residual activity on the attractiveness of POHD against *Anopheles arabiensis* and (v) The potential of cyclopentanone as alternative source of carbon dioxide on the attractiveness of POHD. In the semi field system, the devices augmented with either Mbita blend, Ifakara blend; BG lures, worn sock, heat source, light or CO<sub>2</sub> as attractants, and bioactive agent were exposed to group of female *An. arabiensis* overnight. The efficacy of the POHD was determined by the total number of dead mosquitoes. The study revealed that POHD requires synthetic attractive blends and CO<sub>2</sub> source, but not warmth and light to attract and kill mosquitoes. The efficacy of optimized POHD with bottom mosquito entry baited with Mbita blend was significantly better than other designs of device or blend type. The granular cyclopentanone can be used as an alternative to CO<sub>2</sub> in the outdoor devices for surveillance and mosquito control.