

ORAL PRESENTATION

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# Sugar-fermenting yeast as an organic source of carbon dioxide to attract the malaria mosquito *Anopheles gambiae s.s.*

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## Background

Carbon dioxide (CO<sub>2</sub>) plays an important role in the host-seeking process of opportunistic, zoophilic and anthropophilic mosquito species and is therefore commonly added to mosquito sampling tools. The African malaria vector *Anopheles gambiae* Giles *sensu stricto* is attracted to human volatiles augmented by CO<sub>2</sub>. We investigated whether CO<sub>2</sub>, usually supplied from gas cylinders acquired from commercial industry, could be replaced by CO<sub>2</sub> derived from fermenting yeast (yeast-produced CO<sub>2</sub>).

## Methods

Trapping experiments were conducted in the laboratory, semi-field and field, with *An. gambiae s.s.* as the target species. MM-X traps were baited with volatiles produced by yeast-sugar solutions, prepared in bottles. Catches were compared with traps baited with industrial CO<sub>2</sub>. The additional effect of human odours was also examined.

## Results

Traps baited with yeast-produced CO<sub>2</sub> caught significantly more mosquitoes than unbaited traps and also significantly more than traps baited with industrial CO<sub>2</sub>, both in the laboratory and semi-field. Adding yeast-produced CO<sub>2</sub> to traps baited with human odour significantly increased trap catches. During the field trials, traps baited with yeast-produced CO<sub>2</sub> caught similar numbers of *An. arabiensis* Patton as traps baited with

industrial CO<sub>2</sub>. Addition of human odour increased trap catches.

## Conclusions

We conclude that yeast-produced CO<sub>2</sub> can effectively replace industrial CO<sub>2</sub> for sampling of *An. gambiae s.s.*. This will significantly reduce costs and allow sustainable mass application of odour-baited devices for mosquito sampling in remote areas.

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