

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.*

Renate C Smallegange^{1*}, Wolfgang H Schmied¹, Karel J van Roey¹, Niels O Verhulst¹, Jeroen Spitzen¹, Wolfgang R Mukabana^{2,3}, Willem Takken¹

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Background

Carbon dioxide (CO₂) 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 CO₂. We investigated whether CO₂, usually supplied from gas cylinders acquired from commercial industry, could be replaced by CO₂ derived from fermenting yeast (yeast-produced CO₂).

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 CO₂. The additional effect of human odours was also examined.

Results

Traps baited with yeast-produced CO₂ caught significantly more mosquitoes than unbaited traps and also significantly more than traps baited with industrial CO₂, both in the laboratory and semi-field. Adding yeast-produced CO₂ to traps baited with human odour significantly increased trap catches. During the field trials, traps baited with yeast-produced CO₂ caught similar numbers of *An. arabiensis* Patton as traps baited with

industrial CO₂. Addition of human odour increased trap catches.

Conclusions

We conclude that yeast-produced CO₂ can effectively replace industrial CO₂ 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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Author details

¹Laboratory of Entomology, Wageningen University, P.O. Box 8031, 6700 EH, Wageningen, The Netherlands. ²International Centre of Insect Physiology and Ecology, P.O.Box 30772 - 00100, GPO, Nairobi, Kenya. ³School of Biological Sciences, University of Nairobi, P.O. Box 30197 - 00100 GPO, Nairobi, Kenya.

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¹Laboratory of Entomology, Wageningen University, P.O. Box 8031, 6700 EH, Wageningen, The Netherlands

Full list of author information is available at the end of the article