

# New technique uncovers hidden insecticide resistance

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Researchers at LSTM have developed a new technique which encourages the female *Anopheles funestus* mosquitoes to lay eggs which are then reared into adult mosquitoes to provide sufficient numbers to determine levels of insecticide resistance and to characterise the underlying mechanisms. This image shows eggs being laid using the new technique. Credit: John Morgan, LSTM

A new technique pioneered at Liverpool School of Tropical Medicine (LSTM) is improving the detection and monitoring of insecticide resistance in field populations of an important malaria-carrying mosquito.

Researchers at LSTM, led by Dr Charles Wondji have developed a new technique which encourages the female *Anopheles funestus* [mosquitoes](#) to lay [eggs](#) which are then reared into adult mosquitoes to provide sufficient numbers to determine levels of insecticide resistance and to characterise the underlying mechanisms.

Explaining the significance, John Morgan, who designed the technique, said: "Malaria is the main cause of death in Uganda with some 12 million cases recorded annually. The Ministry of Health relies heavily on insecticide treated nets and spraying to control mosquitoes. The effectiveness

of those control programmes depends on the ability to detect and monitor insecticide resistance.

"The *An. funestus* mosquito is difficult to collect and rear from the field and hence published studies of insecticide resistance in this species are limited. This new forced egg laying technique encourages the females to lay eggs which we were then able to rear into viable populations.

"This allowed us to study levels of resistance to particular [insecticides](#) and in doing so, we have been able to find the first documented resistance to pyrethroid/DDT insecticides in East Africa. This will enable researchers to map the distribution of this resistance and allow the Ministry of Health to modify its vector control programme, thereby increasing its effectiveness and helping to reduce the transmission of malaria."

**More information:** The paper is published in *PLoS ONE*.

Provided by Liverpool School of Tropical Medicine

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