

## ICIPE SCIENTISTS DISCOVER MALARIA TRANSMISSION BLOCKING MICROBE IN MOSQUITOES IN KENYA

On 4 May 2020 the website of the [International Centre of Insect Physiology and Ecology ICipe in Kenya](#) published a news on an exceptional discovery that can make an important contribution in the fight against malaria, a disease that continues to claim more than 400.000 lives every year, according to data from the [World Malaria Report 2019](#) published by the World Health Organization.



As explained on the [ICIPE website](#), *Anopheles gambiae* and other major vectors of malaria in sub-Saharan Africa are currently controlled through high coverage of long-lasting insecticidal nets and indoor residual insecticide spraying exploiting the vectors' habit to preferentially bite humans inside their houses at night. However, intense insecticide use indoors has led to spiraling physiological insecticide resistance in the vectors and behavioral adaptations, i.e. increased early and outdoor biting. ICipe is spear-heading research into innovative vector control tools that can complement current interventions.



A study conducted by ICipe researchers in collaboration with the [Centre for Virus Research of the MRC-University of Glasgow](#) (United Kingdom), has identified a microbe in malaria mosquitoes that is capable of blocking transmission of the disease from the insects to people. The study has been published in the [Nature Communications journal](#) and presents what scientists hope could one day be a natural method of malaria control. The microbe, which the scientists call *Microsporidia MB*, has been found through a study conducted on wild populations of *Anopheles* mosquitoes in their natural environments on the shores of Lake Victoria Kenya.



The researchers established that mosquitoes carrying *Microsporidia MB* do not harbour malaria parasites in nature, or in experimental infection in the laboratory. The research also showed that *Microsporidia MB* is passed from female mosquitoes to their offspring at high rates, and the microbe does not kill or cause obvious harm to the mosquito host.



Healthy insects often have microbial symbionts inside their bodies and cells, which can have major effects on the biology of their hosts. At ICipe, team's research is focused on this type of microbial symbiont, especially when they may be interfering with transmission of diseases by insects.



Although the new *Microsporidia MB* symbiont is naturally found at relatively low levels in malaria mosquitoes in Kenya, the researchers believe that there may be ways to increase the proportion of mosquitoes that carry the symbiont in order to limit their capacity to transmit malaria. This type of transmission-blocking intervention has

been shown to have transformative potential for controlling Dengue, a disease transmitted by *Aedes aegypti* mosquitoes, offering attractive prospects for an approach similar to the one to control malaria.

The researchers stress that further studies will be needed to determine precisely how *Microsporidia MB* could be used to control malaria. The next phase of the research will investigate the dynamics of the microbes in large mosquito populations in screen house 'semi-field' facilities. The results of these studies, expected for 2021, will give key information to determine how to disseminate *Microsporidia MB* for malaria control.

In April 1970, the [International Centre of Insect Physiology ICIPE](#), Africa's only institution dedicated to the study of insects and other arthropods, was officially registered by the government of Kenya, its host country. ICIPE was founded by the internationally renowned Kenyan scientist Prof. Thomas Risley Odhiambo, and since its founding is committed to developing and disseminating environmentally safe, affordable, acceptable and accessible tools and strategies to control insects, pests and disease vectors. ICIPE's mandate further extends to the sustainable conservation and utilization of Africa's rich biodiversity.

### To know more

[News in ICIPE website](#)

[News in Glasgow University website](#)

[Paper in Nature Communications journal](#)

[World Malaria Report 2019 – World Health Organization](#)

[World Malaria Report 2019 Summary](#)

[Malaria mosquito in ICIPE website](#)

[ICIPE Malaria Programme](#)

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