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River blindness fly makes tasty meal for midges

by: Frederick Baffour Opoku

Scientists in Cameroon and Ghana have identified the first potential biological agent that could be used against the parasites that cause river blindness (onchocerciasis).

Researchers say that the midge, *Cardiocladius oliffi*, can eat immature blackflies — which when adult transmit the parasitic worms that cause the disease — reducing adult fly numbers enough to reduce disease transmission.

Today's vector control system relies on chemical insecticides but these are expensive to apply and potentially harmful to the environment.

The midge worked well as a biological agent, according to lead author Daniel Boakye from the Noguchi Memorial Institute for Medical Research at the University of Ghana.

Researchers collected the eggs of blackfly and *C. oliffi* from Boti Falls and the River PawnPawn in Ghana and reared them in the laboratory.

They found that the midges were able to eat the immature stage or pupae of the blackfly because the pupae are not mobile.

Even at the ratio of one midge to five blackfly larvae, there was a "very exciting" decrease in the number of blackfly adults, says co-author Eric Bertrand Fokam, a researcher at the University of Buea, Cameroon, which collaborated on the study.

He told SciDev.Net that almost three decades of the Onchocerciasis Control Programme in West Africa — the largest vector control programme ever — has freed more than 25 million hectares of land in 14 countries of the disease. "However, people will abandon these areas again ... because blackflies recolonise areas."

An effective biological agent against the disease — which the WHO says infects 20 million people — should be used alongside other available tools, says Fokam. Mass administration of the drug ivermectin treats cases but does not stop transmission of the disease.

"This is the first time the use of this biological control [in black flies] was observed outside Australia, and the first in Africa in areas affected by river blindness," says Fokam .

Field studies will be needed to further test the midge's potential, particularly its ability to breed and hunt blackflies in the natural environment, write the authors.

The research was published in *Parasites and Vectors* last month (April).

Source: The Ghanaian Journal