

## DNA 'barcoding' raises hopes for elephantiasis

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The new technique should track down the culprit mosquitoes

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[ACCRA] Scientists in Ghana have found a new way to eliminate elephantiasis, which causes severe swelling and immune damage, and is one of the most common causes of disability in the world.

Scientists at the Noguchi Memorial Institute for Medical Research at the University of Ghana say that DNA barcoding can identify the particular species of Anopheles mosquito that transmits the parasitic worm responsible for the disease. DNA barcoding is a technique that uses a DNA sequence from a particular region of a genome to capture a species' unique identity.

The study's principal investigator Daniel Boakye, deputy coordinator of the Lymphatic Filariasis Support Centre (LFSC), said such barcoding — which needs to be done only on a short sequence of DNA — "may make it easier to target the specific carrier mosquitoes". Boakye warned that "if we are to eliminate the disease" it would be necessary both to control the carrier mosquito before it bites humans and carry out mass drug administration.

The microscopic, thread-like parasitic worms clog human lymph nodes in the adult stage of their life cycles and can cause the swelling known as elephantiasis or lymphatic filariasis even at low levels.

John Gyapong, the coordinator of LFSC, said the research team traversed all of Ghana during both dry and wet seasons for two years, compiling data.

Gyapong said the researchers had to collect many different types of Anopheles mosquitoes and identify them as vector species before their genes were sequenced because it is difficult to distinguish between parasite-carrying species and other species of mosquitoes.

A member of the Ghana research team and scientific adviser to the LFSC, Michael Wilson, said the DNA barcoding was "a significant breakthrough" for West Africa.

"We will be able to identify species of mosquitoes that are more dangerous. Apart from killing them directly we will also modify the environment and get rid of breeding habitats, putting up barriers between humans and mosquitoes using treated nets as curtains to screen windows, doors and cover the eaves of homes," he said.

Wilson told SciDev.Net that further, as yet unpublished research shows that a variety of environmental factors such as temperature influence the range of the parasite-infected mosquitoes and will be able to help scientists predict outbreaks as climate change makes an impact.

The discoveries come after the Global Alliance to Eliminate Lymphatic Filariasis met earlier this month (3–5

April) in Arusha, Tanzania, to coordinate efforts to eradicate the disease, saying that it had affected about one billion people worldwide.