

Floating spores kill malaria mosquito larvae

February 21 2011

There are over 200 million cases of malaria each year and, according to the World Health Organisation, in 2009 malaria was responsible for 781,000 deaths worldwide. Malaria is spread by mosquitoes which breed in open water and spend much of their larval stage feeding on fungi and microorganisms at the water surface. New research published in BioMed Central's open access journal *Parasites and Vectors* presents a method of dispersing pathogenic fungi as a means of preventing the spread of malaria.

The parasite (genus *Plasmodium*), which causes malaria, is transmitted to humans with mosquito saliva during a bite, where it invades the liver and [red blood cells](#) causing fever. Once infected, it can be difficult for a human host to recover because some species of *Plasmodium* are able to lie dormant and evade antimalarial drugs. These parasites are also becoming resistant to the antimalarials taken to prevent infection. An alternative way of reducing the risk of [malaria infection](#) is to kill the mosquitoes. The fungi, *M. anisopliae* and *B. bassiana*, cause muscardine disease in mosquito larvae, leading to their death before they can pupate and develop into the adult form.

Tullu Bukhari and colleagues from the Laboratory of Entomology, Wageningen University, The Netherlands, have used a synthetic oil (ShellSol T) as a means of dispersing [fungal spores](#) over the surface of water. The oil-spore preparation is easy to mix and use of the oil improved the dispersal of spores across the water. This simple formulation increased both the persistence and effectiveness of spores, killing up to 50% more larvae than untreated spores and reducing

pupation levels to less than 20% at a test site in Kenya.

Speaking about the research Tullu Bukhari said, "these fungi provide an effective means of controlling [malaria mosquitoes](#). Both spores and the oil have minimal risk to fish and [aquatic organisms](#) and so are also environmentally safe."

More information: Development of *Metarhizium anisopliae* and *Beauveria bassiana* formulations for control of malaria mosquito larvae, Tullu Bukhari, Willem Takken, and Constantianus J.M. Koenraadt, *Parasites and Vectors* (in press)

Provided by BioMed Central

Citation: Floating spores kill malaria mosquito larvae (2011, February 21) retrieved 25 April 2024 from <https://medicalxpress.com/news/2011-02-spores-malaria-mosquito-larvae.html>

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