

Jumaada al-awal 20, 1426 Hijri June 28, 2005

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## Fungus - a new weapon to fight malaria?

Wednesday June 15, 2005 (1555 PST)

**ISLAMABAD: Fungus could be the new weapon to fight malaria, say new studies.**

Spraying walls or cloth with spores of a fungus that kills mosquitoes could greatly reduce malaria transmission, according to two studies published in Science.

This could give a fillip to research on using fungus as a biological control agent to control malaria.

One advantage of using fungus instead of bacteria or viruses is that mosquitoes need only come into contact with the fungal spores - they do not need to ingest them. The spores germinate and penetrate the insect's outer surface, before spreading inside them, reports science portal ScDev.Net.

Researchers say spraying fungal 'biopesticides' could replace or supplement chemical-based control strategies, especially in areas where mosquitoes are developing resistance to pesticides.

Certain fungi not only kill mosquitoes but can also reduce the likelihood of them transmitting malaria before they die, according to one research led by Matt Thomas of Imperial College and Andrew Read of the University of Edinburgh, Britain.

When they exposed *Anopheles stephensi* mosquitoes to the fungi, the researchers found that the mosquitoes were 80 times less likely to transmit malaria.

The researchers assessed eight strains of two fungal species: *Beauveria bassiana* and *Metarhizium anisopliae*.

The fungi kill malarial mosquitoes before they can transmit the parasite. The team sprayed cardboard pots with fungal spores suspended in oil, then 24 hours later introduced mosquitoes that had taken a blood meal and left them for two weeks.

In six of the eight tests, more than 80 per cent of the mosquitoes died. The fungus also affects mosquitoes' ability to feed, making them less likely to spread malaria.

Mosquitoes tend to rest on walls or ceilings after feeding. This makes them easy targets for control. Thomas's team showed that even a brief six-hour exposure to a 12-day old spray killed 89 percent of mosquitoes.

Of the fungi studied, *Beauveria bassiana* is particularly promising as it is already used as an agricultural biopesticide. This means that if further studies show that it is safe, it might rapidly be approved for use.

The second study in Science tested the approach in rural African field conditions. Bart Knols of Wageningen University, in the Netherlands, and Gerry Killeen of the Ifakara Health Research and Development Centre in Tanzania, hung cotton sheets impregnated

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with the fungus *Metarhizium anisopliae* from the ceilings of traditional houses in a Tanzanian village.

The fungus infected 23 percent of the 580 female *Anopheles gambiae* mosquitoes during the treatment period. Infected females lived on average 3.5 days, uninfected ones for 9.3 days.

"Even with just 23 percent of the mosquitoes in houses acquiring an infection, the [intensity of malaria transmission] could be reduced from 262 infective bites per year to 64 - a drop of 75 percent," said a researcher.

The researchers say that by refining the method if they could cause 50 percent of mosquitoes to be infected, the intensity of malaria transmission would fall by 96 percent.

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