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Laboratory studies in Britain and field studies in Tanzania used fungal spores to infect mosquitoes. The insects usually died before they were capable of biting humans.

# Discovery is hard cheese for killer mosquitoes

By Mark Henderson  
Science Correspondent

A FUNGUS similar to cheese mould could become a valuable weapon in the fight against malaria, scientists report today.

British research has revealed that a common fungus can reduce malarial transmission by 98 per cent in the laboratory, by killing the mosquitoes that pass the parasite on.

The findings, from a team at the University of Edinburgh and Imperial College, London, suggest that spraying living quarters with the fungus, which is harmless to humans, could help to prevent infection with a disease that kills up to 2.7 million people a year.

A second study, in Tanzania, has indicated that the fungus is likely to be a practical method of malaria control in the field.

Ernst-Jan Scholte of Wageningen University in the Netherlands, who led the field research, said: "The results are extremely encouraging. The fungi provide another tool in the fight against malaria."

The approach to malaria prevention uses the fungus *Beauveria bassiana* as a biological pesticide. Many malarial mosquitoes have evolved resistance to chemical pesticides. Some pesticides that remain effective, such as DDT, are banned for health and environmental reasons.

Inert fungal spores are sprayed on walls and ceilings, or impregnated into bedclothes and mosquito nets. When the insects come into contact with the spores, the fungus germinates and grows within them. The mosquitoes usually die from fungal infection before they can spread malaria.

Details of both studies are published today in the journal *Science*.

Professor Andrew Read of the University of Edinburgh said: "When mosquitoes have

taken a big amount of blood they rest up on house walls and ceilings to digest it. They are so big and fat that they cannot fly off for around six hours.

"We have shown that if they are sitting among spores, the fungus penetrates the mosquito and kills it. It takes two weeks for malaria to develop in a mosquito before it can pass it on to another human. But this way, we can kill the insect before that.

"As they get sicker, they are less likely to blood-feed or fly well so they run out of steam and grind to a halt. Many mosquitoes are becoming resistant to chemical pesticides so this is a different way to kill them."

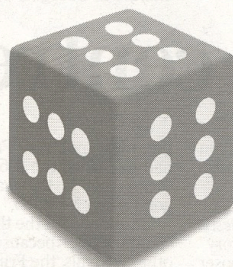
A further advantage of the fungal approach is that mosquitoes have never been seen to evolve resistance to fungal infections. Matt Thomas, of Imperial College, said that even if they did develop this, it is unlikely that they would also be immune to chemical pesticides.

Gerry Killeen, of the Ifakara Health Research and Development Centre in Tanzania, said: "If this fungus can kill mosquitoes and prevent malaria, then it merits serious investigation. We need alternatives to chemical insecticides, especially DDT."

Any agreement to assist Africa at the G8 Gleneagles summit will fail unless steps are taken to tackle malaria as a global crisis, a parliamentary report said yesterday.

The All-Party Parliamentary Malaria Group said that the scale of the challenge from the disease will put any package of aid and trade assistance in jeopardy. It called for "increased and sustained resources" from the rich world, saying that the chief obstacle to progress is not a shortage of knowledge about how to deal with the illness but a lack of political will to put this into practice.

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