Why sleeping with a chicken next to your bed can help beat malaria

* 01:00, 21 JUL 2016
* **UPDATED**08:10, 21 JUL 2016
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Researchers found that Anopheles arabiensis, one of the predominant mosquito species transmitting malaria in sub-Saharan Africa, avoids chickens when looking for creatures to feed on.

Sleeping with a chicken next to your bed can help protect against malaria, according to new research.

Scientists have shown that malaria-transmitting mosquitoes actively avoid feeding on certain animals, such as chickens, by using their sense of smell.

Odours emitted by species such chickens could provide protection for humans at risk of mosquito-transmitted diseases.

Researchers found that Anopheles arabiensis, one of the predominant mosquito species transmitting malaria in sub-Saharan Africa, avoids chickens when looking for creatures to feed on.

This suggests that unlike humans, cattle, goats and sheep, chickens are a non-host species for the insects, and that they have found ways of distinguishing them from their preferred types of food.

To find out which species the mosquitoes prefer, the team collected data on the population of human and domestic animals in three Ethiopian villages.

They also collected blood-fed mosquitoes to test for the source of the blood that the mosquitoes had fed on.

People living in the areas in which the research was conducted share their living quarters with their livestock.

The study, found that while An. arabiensis prefers human over animal blood when seeking hosts indoors, it randomly feeds on cattle, goats and sheep when outdoors, but avoids chickens in both settings.

Since mosquitoes select and choose between their hosts mainly by smelling them, scientists collected hair, wool and feathers from potential host and non-host species to analyse their smells.

Identifying certain odours that were only present in chicken feathers, researchers used these and other odours from all species to test their ability to repel mosquitoes from traps.

Traps were set up in 11 thatched houses for 11 days, and in each house a single volunteer aged between 27 and 36 slept under an untreated bed net.

Significantly fewer mosquitoes were caught in traps baited with chicken smells than in control traps and suspending a living chicken in a cage next to a trap had a similar repellent effect.

Because the mosquito feeds indoors and outdoors on various host species, it is difficult to control with existing methods, according to previous research.

The results of this study, published in the open access Malaria Journal, suggest that, in combination with other methods, the odours emitted by chickens and other non-host species could control the species of mosquito.

Corresponding author Rickard Ignell said: “People in sub-Saharan Africa have suffered considerably under the burden of malaria over an extended period of time.

Mosquitoes are becoming increasingly physiologically resistant to pesticides, while also changing their feeding habits for example by moving from indoors to outdoors.

“For this reason there is a need to develop novel control methods.

“In our study, we have been able to identify a number of natural odour compounds which could repel host-seeking malaria mosquitoes and prevent them from getting in contact with people.”