

GM mosquitoes - boon or bane?

Indian public health experts are not at all excited by the news that American scientists have created genetically modified mosquitoes to help fight malaria, saying it had been tried here before and abandoned as a failure.

'We tried genetic control in the 1970s and abandoned it,' P.L. Joshi, director of the National Vector Borne Diseases Control Program in New Delhi, told IANS. 'It seemed to work in the lab but failed at field level.'

Scientists at John Hopkins University in the US announced this week that their GM mosquito is resistant to the malaria parasite, meaning that it cannot pass on malaria to humans via a bite.

Their 'cage' experiments also showed that the GM mosquitoes-because they were free of the malaria parasite-lived longer than the wild ones and laid more eggs.

Based on this finding, the scientists concluded that their GM mosquitoes released into the wild in large numbers would-over a period of time-displace the natural mosquitoes that transmit malaria.

While reports said that a field trial with GM mosquitoes could start in five years in Africa, Joshi said he is sceptical about genetic control approach after India's experience some 30 years ago.

In 1975 the Indian government called off the planned release of millions of altered mosquitoes in Sonapat in Haryana and closed down the US financed genetic control project in New Delhi. The authorities wanted to be sure that the modified mosquitoes did not become carriers of a disease that did not exist in India.

'We take up only safe, well tested, and proven methods in our control program,' Joshi said, adding that the best way to control malaria is reduction at the source.

'The recent epidemics of dengue and chickungunea have convinced us that mosquito population cannot be reduced unless there is concerted by the community as a whole,' he said. 'Genetic control is not the answer.'

'The biggest problem with genetic control is separating the male mosquitoes from the females,' P.K. Rajagopalan, a scientist who was associated with the abortive Indo-US project and who later headed the Vector Control Research Centre in Pondicherry, told IANS.

Female mosquitoes - and not males - are responsible for spreading the disease, he pointed out. 'Releasing only males is a difficult task as sexing is never 100 per cent accurate even with improved methods.'

Although the GM mosquitoes do not carry the malaria parasite, the presence of even one per cent females in millions of released mosquitoes adds to nuisance value because they can still bite,' Rajagopalan said.

'Uncontrolled release of GM organisms to wipe out traditional mosquitoes also raises serious questions on ecosystems and public health,' Rajagopalan said, adding he did not rule out the

possibility of released GM insects becoming carriers of a human disease 'they were never before able to transmit'.

'I hope India does not once again become a testing ground for this dubious technology,' Rajagopalan warned.

The creation of GM mosquitoes by the US scientists builds on earlier work by a team at Imperial College in London in 2000 demonstrating for the first time the insertion of a foreign gene into the mosquito genome.

In any case, the work by US scientists is still far from being taken to the field. So far they have only managed to genetically engineer the mosquitoes to be resistant to a form of malaria that affects mice. This is different from the form that affects humans.

Major hurdles would remain even if the GM technology is perfected. Pew Initiative on Food and Biotechnology, an independent organisation in the US, points out there are no guidelines about how transgenic insects will be regulated. 'The mobility and range of insects pose international regulatory challenges never faced with GM crops,' the report said.

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