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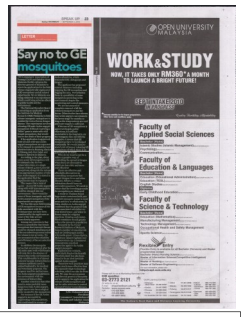

Say no to GE mosquitoes

THE Consumers' Association of Penang (CAP) and Sahabat Alam Malaysia (SAM) call upon the director-general of biosafety to reject the application for the field release of genetically engineered (GE) mosquitoes and all related experiments. We in Malaysia are being subjected to an experiment which could bring adverse effects to public health and the environment.

The National Biosafety Board is assessing an application from the Institute for Medical Research (IMR) Malaysia to field release transgenic mosquitoes to combat the vector-borne dengue disease. The experiment involves releasing GE male Aedes aegypti mosquitoes (OX513A) carrying a "killer" gene to mate with wild female mosquitoes, that would lead to the death of their progeny.

If the application is approved, both GE and wild type Aedes aegypti mosquitoes are expected to be released in uninhabited and inhabited sites in Bentong district in Pahang, and Alor Gajah and Malacca districts in Malacca.

According to the plan, about 2,000-3,000 GE mosquitoes will be released a day for two consecutive days, or a single release of about 4,000-6,000 GE mosquitoes, alongside the release of an appropriate number of wild type Aedes aegypti. It is stated in the application that the experiments may be repeated.

This means that a total of 24,000 – 36,000 GE Aedes aegypti along with wild type mosquitoes could be released into our environment. There would be more of these transgenic and wild Aedes aegypti mosquitoes if the experiments are repeated.

We fear this open-field testing of GE mosquitoes because all the risks associated with this technique may not have been considered by the applicants as some of the risks are not immediately apparent.

Among our concerns is that there is a possibility that female mosquitoes that transmit disease could be released simultaneously if the sex selection process before the release is not accurate. We are not assured of the reliability and efficiency of the sex selection process.

In addition, the mosquito larvae that are produced after the GE males mate with wild females will only die in the absence of tetracycline in the environment. This conditionality is of utmost concern because tetracycline is a common antibiotic used in animal husbandry, for medical and veterinary purposes. The progeny may live and increase the Aedes aegypti population in the environment with the presence of tetracycline.

Another concern is that other insects, some probably more dangerous than Aedes aegypti, might move into the ecological niche vacated by the mosquitoes.

For instance if the GE Aedes aegypti is successful in suppressing wild populations, this could result in a surge of Aedes albopictus, which transmits both chikugunya and dengue.

The applicant has proposed control measures including trapping the GE mosquitoes and fogging the area. Nevertheless there is a possibility of some mosquitoes persisting in the environment despite the monitoring and control measures.

We are not assured of complete removal of all the released mosquitoes and the larvae. Other studies have shown that Aedes aegypti can remain in the larvae stage for months so long as the temperatures are cool and water supply is sufficient.

If the use of GE mosquitoes is approved despite public objections, it is still not sustainable in the long term. As the transgene dies out with the mosquito, it means that GE mosquitoes have to be released continually. We would need to spend a lot of money releasing GE mosquitoes of which there is no guarantee of its safety.

Why do we want to opt for a rather expensive way of controlling the spread of dengue when there are alternatives which are less risky and more cost effective?

There are effective and affordable alternatives in controlling mosquitoes that spread dengue fever and other diseases. Efforts to reduce infestation should focus on preventive practices. We need to ensure that the breeding grounds for mosquitoes are destroyed.

A study in Thailand found large water containers held 90% of Aedes mosquito pupae in rural areas and 60% in urban areas. In Cuba, studies on Aedes aegypti confirmed that the greatest risks were associated with failure to treat stored water, and water in flower vases for religious practices. Treating such water-filled containers should greatly reduce the mosquito population.

Research by the Forest Research Institute of Malaysia found a number of essential oils such as Cymbopogon nardus (citronella grass), Litsea eliptica, Melaleuca cajuputi (gelam) and Cinnamomum spp (cinnamon) demonstrates repellent properties against the Aedes aegypti mosquito.

Euphoriaceae extracts, particularly Euphorbia tirucalli (firestick plant) has also been found to be an ideal larvicide against Aedes aegypti.

These low-tech practices may prove much more effective than the expensive high-technology solutions, which are also far from safe. We urge the government and director general of biosafety not to approve the application for release of GM mosquitoes and opt for safer solutions to control spread of vector-borne diseases.

S.M. Mohamed Idris
President
Consumers' Association of Penang and Sahabat Alam Malaysia