

Birdcages source of dengue virus

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The research suggests that birdcages may have been producing dengue vectors for many years in rural homes of peninsular Malaysia. Credit: Pimpong Pookjuntuk

Bird keeping for personal or commercial purposes is as common in Malaysia as in the rest of South-East Asia. However, birdcages could provide an ideal environment for the development of mosquitoes that transmit dengue virus to humans.

Dengue fever is a debilitating and sometimes deadly disease caused by a virus transmitted by mosquitoes. Its symptoms include fever, headache, rash, muscle and joint pain, and sometimes severe bleeding.

Researchers have found that mosquito larvae can grow in bird faeces dropped into birdcage water bowls. Previous research found various developmental stages of the mosquito *Aedes albopictus* in the water containers of birdcages in rural homes of peninsular Malaysia. *Aedes albopictus* can transmit more than 20 diseases to humans, including dengue. Researchers were unsure, however, whether bird droppings contributed to the development and population maintenance of these mosquitoes.

Hamady Dieng of Universiti Malaysia Sarawak with colleagues from Malaysia and Japan found that *A. albopictus* can breed on bird faeces as effectively as when they are cultured under laboratory conditions with standard mosquito feed.

Dr Dieng and his colleagues collected mosquito samples from nine water containers in birdcages owned by residents of Penang State, Malaysia. The researchers divided hatched larvae into two high-density groups and

two low-density groups (to check the impact of density on population growth), containing 80 and 40 larvae respectively. They then fed one set in each density group with standard larval food, which is commonly used to culture mosquitoes in labs, and the other with bird faecal matter, made of powdered bird manure from spotted doves.

They found that larvae grown on standard larval food or bird faecal matter had similar mortality rates and developed into pupae and adults with similar success rates. Female mosquitoes from the low-density group fed on blood and produced eggs at similar levels regardless of the type of food given during the larval stage, suggesting they had an equal potential of spreading [dengue virus](#) to humans.

The research suggests that birdcages may have been producing dengue vectors for many years in the region. This knowledge could help the development of preventive measures against the disease.

Dr Dieng now plans to examine the capacity of fecal matter from cats and dogs to support the development of [dengue](#) mosquitoes.

Provided by Universiti Malaysia Sarawak

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