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## New hope for defeating the tiger mosquito



An experimental research carried out in Sant Cugat del Vallès and Rubí, coordinated by researchers from UAB, assessed the efficacy of a combination of three complementary strategies -avoid having stagnant water, using insecticides to eliminate larvae and adults, and removing rubbish- to reduce the population of tiger mosquitoes (*Aedes albopictus*). Originary from Asia, it is the first insect capable of transmitting tropical diseases such as dengue or yellow fever in Spain. The research is based on monitoring eggs found in small experimental traps and researchers observed, for the first time ever, that the number of eggs diminished significantly in the areas of intervention after applying the measures.

An experimental research carried out in Sant Cugat del Vallès and Rubí, coordinated by researchers from UAB, assessed the efficacy of a combination of strategies to reduce the population of tiger mosquitos (*Aedes albopictus*). The research began in February 2008. The research focused on monitoring eggs found in small experimental traps. Researchers observed that for the first time, the number of eggs diminished significantly in the areas of intervention after applying the measures.

The strategies began with a visit to the affected areas, where owners were informed on prevention measures and told the importance of eliminating any stagnant water accumulating in gardens or patios. The next stage included applying insecticides to plugholes, water storage tanks and drains to eliminate larvae, and removing vegetation from parks and gardens to get rid of adult mosquitos. The final measure focused on cleaning out all rubbish or debris in the area which could favour the proliferation of the mosquitos.

Researchers inspected over 3,000 homes and interviewed almost 700 people. To demonstrate the effectiveness of the eradication treatment, researchers monitored the number of eggs deposited in simple traps consisting of small pieces of wood placed in glasses of water. These traps mimic conditions found on tree trunks where mosquitos originally reproduced in the jungles of Asia.

The research, published in Transactions of the Royal Society of Tropical Medicine and Hygiene, demonstrates for the first time in Europe a substantial reduction in eggs in areas that were treated when compared to the control areas in which these eradication measures were not applied. More specifically, the number of eggs in areas where the treatment was applied reduced by more than half.

Native to the jungles of Asian, the *Aedes albopictus* species was detected for the first time in Spain in Sant Cugat del Vallès the summer of 2004, and from there the mosquitos began to extend rapidly to other regions of Catalonia. Tiger mosquitos can be found currently in 119 municipalities and have affected some five million people in all Catalonia.

Although the nuisance caused by these mosquitos justifies the efforts made to eradicate them, the research was based on the effects the insect has as a vector for the transmission of arbovirus infections, such as dengue fever, yellow fever, etc. The Asian tiger mosquito is the first insect in Spain capable of transmitting these tropical diseases and its arrival represented a paradigm shift. The risk in Europe of this type of disease transmission initially was considered to be low, but possible. In the summer of 2007 there was an outbreak of Chikungunya fever in Italy, with 200 people falling ill due to mosquito bites. Sporadic cases of dengue fever have also been reported in France. Thus, the research offers an intervention model with which to control this insect and apply measures to fight against this public health threat.

The study, coordinated by researchers of the UAB Department of Pharmacology, Therapeutics and Toxicology and Institute of Environmental Science and Technology (ICTA), included the participation of scientists from the Doñana Biological Station, the Research Foundation Mútua de Terrassa, a UB-affiliated centre, and the Department of Ecology of Universidad Autónoma de Madrid.

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## References

"Effectiveness of a multiple intervention strategy for the control of the tiger mosquito (*Aedes albopictus*) in Spain". Abramides G, Roiz D, Guitart R, Quintana S, Guerrero I, Giménez N. *Trans R Soc Trop Med Hyg*, 2011;105:281-8.

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