



NOTA DE PRENSA

A study led by the CSIC shows low relevance of the tiger mosquito in the transmission of avian malaria

- The researchers have analyzed the role of this mosquito as vector of avian malaria pathogens.
- The tiger mosquito may play a minor role in avian *Plasmodium* transmission in the wild, likely due to its mammal-biased blood-feeding pattern



Asian tiger mosquito (*Aedes albopictus*) // James Gathany, CDC

Sevilla, 25 de julio de 2024. Besides its relevant role in the transmission of several diseases affecting humans, the tiger mosquito may not be so involved in the transmission of avian malaria. This is the conclusion of a recent scientific review published in the journal *Animals* where the impact of *Aedes albopictus*, the tiger mosquito, in the transmission of avian malaria pathogens has been assessed. This review, carried out by the Doñana Biological Station – CSIC, the University of Granada and the Lithuanian Nature Research Centre, highlights the expansion of the tiger mosquito's distribution range to almost all continents and the potential alteration of the transmission dynamics of wildlife diseases. This work is part of the COST European Action WIMANET.

The Asian tiger mosquito is an invasive species with a wide current distribution range. In addition to being a nuisance due to its bites, this mosquito is a public health problem since it is a vector of several diseases affecting humans, such as dengue or Zika. Changes in its distribution area could facilitate the transmission of these diseases in the invaded areas, where most of the studies have been focused on diseases affecting humans. However, their role in the transmission of diseases such as avian malaria, affecting wild birds, is scarcely studied. The research team aimed at reviewing the information available to clear out the role of Asian tiger mosquitoes as vectors of these pathogens.

The reviewed studies, monitoring the presence of avian malaria pathogens in mosquitoes captured in the wild, showed a minimum infection rate, suggesting that, although the tiger mosquito is able to interact with these pathogens, its role as vector is limited. “We suggest that it may be due to its tendency to feed mainly on the blood of mammals, and not so much on birds,” explains Jesús Veiga, researcher at the Doñana Biological Station – CSIC and first author of the study. However, the number of studies exploring this possibility is small, and they have only been carried out in a few countries where this invasive mosquito is present.

This work also reviewed studies analyzing the development of avian malaria pathogens, genus *Plasmodium*, in the laboratory. A great variability was found depending on the species of pathogen involved. Species such as *Plasmodium vaughani* and *Plasmodium circumflexum* may not seem to be able to complete their development in the tiger mosquito. Others, such as *Plasmodium gallinaceum* seem to develop relatively well and even transmit effectively from one bird to another. *Plasmodium gallinaceum* significantly affects poultry and causes major economic losses due to the mortality of untreated birds, loss of meat quality, and reduction in egg production. Therefore, special attention should be given to the presence of tiger mosquitoes in these environments.

“However, the results obtained to date are limited to a few species and genetic lineages of avian *Plasmodium*, limiting the conclusions that we may reach for the role of this invasive mosquito in the circulation of avian malaria”, says Veiga. “This is especially relevant considering that there are more than 50 morphospecies and 1500 genetic lineages of avian *Plasmodium*.” Further studies considering other avian *Plasmodium* species and lineages are essential to forecast how the introduction of the tiger mosquito in new ecosystems may affect the epidemiology of avian malaria in nature.

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Reference:

Veiga, J.; Garrido, M.; Garrigós, M.; Chagas, C.R.F.; Martínez-de la Puente, J. A Literature Review on the Role of the Invasive *Aedes albopictus* in the Transmission of Avian Malaria Parasites. *Animals* 2024, 14, 2019. <https://doi.org/10.3390/ani14142019>