



## PRESS RELEASE

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# First detection of the Sindbis virus (SINV) in mosquitoes from southwestern Spain

- A study conducted by the Instituto de Salud Carlos III (ISCIII) and the Estación Biológica de Doñana (EBD-CSIC) has detected mosquitoes in Spain infected with Sindbis virus, a microorganism primarily hosted by birds and which can occasionally infect humans.
- The finding provides key information on the circulation of this virus in southern Europe and paves the way for further research to assess its potential impact on public health in Spain.



*Mosquito del género culex / EBD-CSIC*

**Seville (Spain), 17th January 2025.** Joint research led by teams from the Carlos III Institute of Health (ISCIII) and the Doñana Biological Station (EBD-CSIC), both of which are part of the Ministry of Science, Innovation and Universities, has identified, for the first time in Spain, the presence of the Sindbis virus in mosquitoes in the southwest. This finding marks an important advance in the knowledge of the circulation of this virus in southern Europe, and is an example of the importance of monitoring and studying the transmission routes of viruses that cause infectious diseases.

Sindbis virus belongs to the genus *Alphavirus*, and is mainly transmitted by mosquitoes of the genus *Culex*. The virus, which is zoonotic (i.e. it is transmitted from animals to humans), circulates among birds, its main host, but can occasionally affect humans when a mosquito infected by the virus feeds on human blood. Although the virus is usually asymptomatic, it can occasionally cause symptoms such as fever, skin irritations, joint pain and/or headache, causing outbreaks of fever in humans, as has been observed in South Africa and northern Europe.

To conduct the research, the scientific team analysed 31,920 mosquitoes, grouped in 1,149 batches, captured in 2022 in Western Andalusia. Sindbis virus was detected in 137 batches (11.92%) and in five different mosquito species, with the *Culex perexiguus* species showing the highest infection rate. In addition, it was detected in different localities in the provinces of Malaga, Seville, Huelva and Cadiz, with the latter having the highest infection rate.

Genomic analysis of the strains detected in Spain revealed that they all belong to genotype I, previously detected in other areas of Europe and Africa. The Spanish strains showed low genetic variation and were closely related to strains from Algeria and Kenya, suggesting a recent introduction of the virus into Spain by migratory birds, possibly from the north (Algeria) or central Africa.

This discovery was made possible thanks to the collaboration of the ISCIII and CSIC with the Junta de Andalucía's West Nile Virus Surveillance and Control in Vectors Programme, and highlights the importance of surveillance programmes in the early detection of emerging pathogens. The authors note that further studies are needed to further determine the public health significance of this virus in Spain.

The main authors of this study are Rafael Gutiérrez López and Ana Vázquez, from the National Microbiology Centre (CNM) of the ISCIII, and María José Ruiz López and Jordi Figuerola, from the Department of Conservation Biology and Global Change at the Doñana Biological Station, part of the Spanish National Research Council (CSIC). These authors also belong to the Infectious Diseases (CIBERINFEC) and Epidemiology and Public Health (CIBERESP) areas of the Centro de Investigación Biomédica en Red (CIBER) of the ISCIII.

According to Ana Vázquez and Rafael Gutiérrez, from the CNM-ISCIII, 'The importance of this finding lies in the possibility of investigating the importance that this virus may have in Public Health, if it is producing infections in humans and taking into account the knowledge acquired to improve the differential diagnosis with other arboviruses'.

María José Ruiz López and Jordi Figuerola, from the Doñana Biological Station-CSIC, add: 'The study demonstrates the circulation of a virus with potential public health importance long before human cases have been detected, so it is very important to know the possible spread of this virus in Spain and establish the real impact it may have on the health of the population'.

Juan Ledesma, Cristina Nieto, Juan Camacho, Sarai Varona, Isabel Cuesta, Isabel Jado García and María Paz Sanchez-Seco (all ISCIII researchers), Sergio Magallanes (EBD-CSIC), Santiago Ruiz (Diputación de Huelva), Carolina Sanchez Peña and Ulises Ameyugo (Junta de Andalucía) also sign the article, published in the journal *One Health*.

## Reference

Rafael Gutiérrez-López, María José Ruiz-López, Juan Ledesma, Sergio Magallanes, Cristina Nieto, Santiago Ruiz, Carolina Sanchez-Peña, Ulises Ameyugo, Juan Camacho, Sarai Varona, Isabel Cuesta, Isabel Jado-García, María Paz Sanchez-Seco, Jordi Figuerola, Ana Vázquez. First isolation of the Sindbis virus in mosquitoes from southwestern Spain reveals a new recent introduction from Africa. *One Health*, Volume 20, 2025, 100947, ISSN 2352-7714. <https://doi.org/10.1016/j.onehlt.2024.100947>