

# Study opens the door for developing gene drive strains for the population suppression of medfly

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*Ceratitits capitata* (medfly) Credit: Wikimedia Commons

Researchers have created the first gene drive for the Mediterranean fruit fly (medfly), a global agricultural pest affecting food production. The team was led by Dr. Nikolai Windbichler and Dr. Angela Meccariello at Imperial's Department of Life Sciences, and included researchers from the University of East Anglia and the Hebrew University of Jerusalem. [The study is published in \*Nature Communications\*.](#)

Gene drives are genetic modifications that preferentially spread throughout a species, and which are designed to reduce the population. No gene drives have been released in the wild yet, but versions in malaria-carrying mosquitos have been shown to be highly effective in the lab.

This success prompted the researchers to look at other pest species that could be susceptible to similar interventions. The team were able to target the process of sex determination in medflies, creating a gene drive that transforms genetic females into fertile but harmless XX males. The proof-of-concept demonstrates how gene drives can be applied to [insect pests](#) in the same group as medflies.

Dr. Meccariello said, "Our results demonstrate the untapped potential for [gene drives](#) to tackle agricultural pests in an environmentally friendly and economical way."

**More information:** Angela Meccariello et al, Gene drive and genetic sex conversion in the global agricultural pest *Ceratitis capitata*, *Nature Communications* (2024). [DOI: 10.1038/s41467-023-44399-1](https://doi.org/10.1038/s41467-023-44399-1)

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