

# First record of *Leptopilina japonica* (Hymenoptera: Figitidae), a parasitoid of *Drosophila suzukii*, in Germany?

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## Background

- *Drosophila suzukii* is a global pest of fruit and berries and has spread rapidly in the last two decades.
- Native pupal parasitoids in Europe attack *D. suzukii*, but larval parasitoids can not propagate on this new host.
- In contrast, in the area of origin, very effective larval parasitoids are present, notably *Leptopilina japonica* and *Ganaspis brasiliensis*. Both species were recently detected in North America and may be candidates for unintentional biological control [1,2].
- In Europe, *L. japonica* was found the first time in Italy in the year 2019 [3].

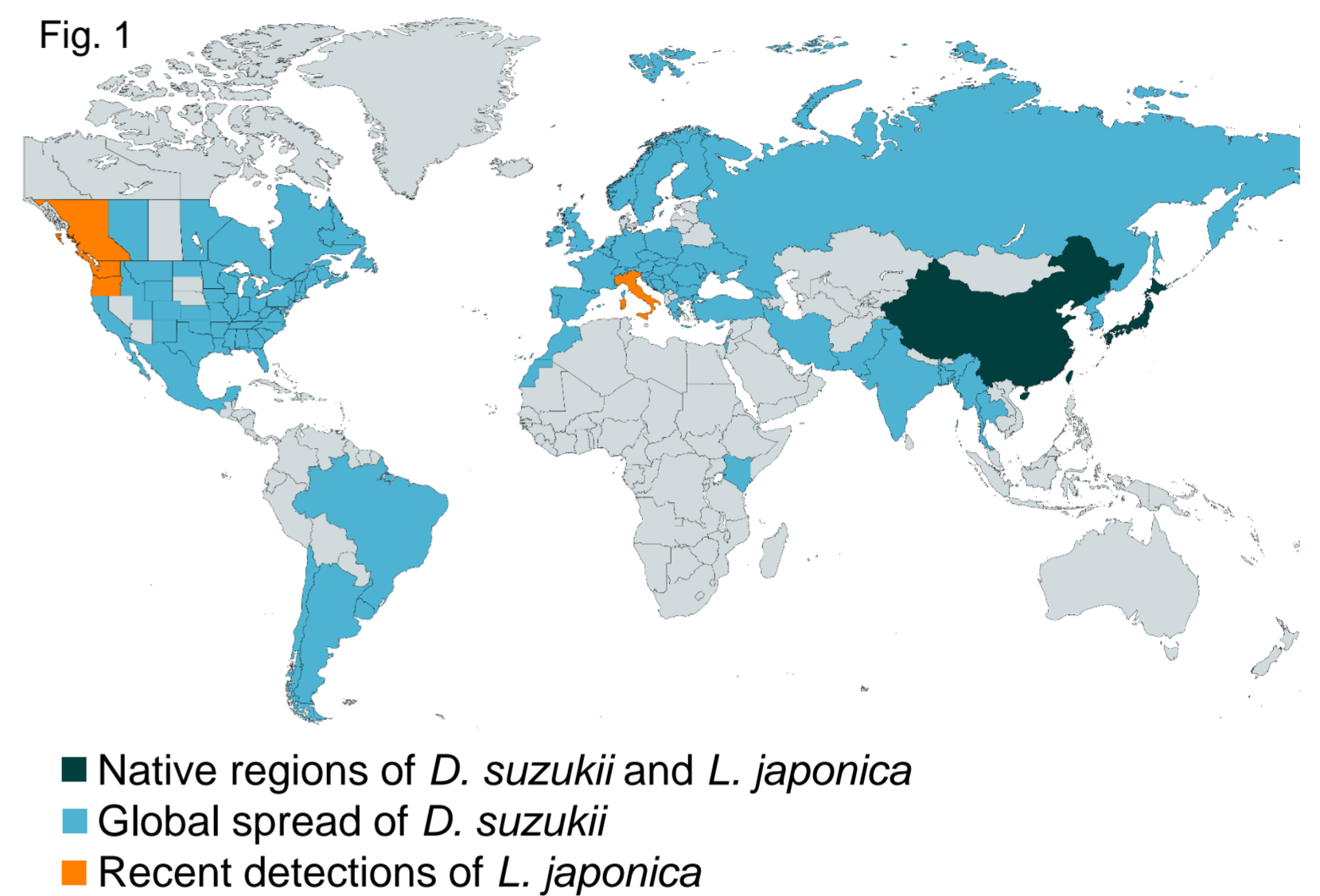


Fig. 1: Global distribution of *D. suzukii* and *L. japonica*. Data for *D. suzukii* taken from CABI Distribution Maps [4], data for *L. japonica* from Abram et al., Beers et al. and Puppato et al. [1-3].

## Methods & Results

- Infected raspberries were exposed weekly for a period of five days in raspberry cultures from August to mid-October in so-called bait stations with pupae of *D. suzukii* (Fig. 2).
- Three *Leptopilina* specimen eclosed from hosts which were exposed in the period of September 17<sup>th</sup> to 22<sup>nd</sup> (one female and one male) and in October 1<sup>st</sup> to 6<sup>th</sup> (one female) in 2021.
- All specimen were morphologically identified to genus level according to Forshage & Nordlander [5], and to species level using Novković et al., Lue et al. and Abram et al. [6-8] by J. Martin. One specimen was then barcoded, the COI barcode showed highest similarity to *L. japonica* isolate USNMENT01525930 CO1.
- Both identification methods suggest, that three *L. japonica* specimen were detected in summer of 2021 on the experimental field of the Julius Kühn Institute in Dossenheim – the first known records in Germany.
- In 2022, more sampling was done to investigate whether the specimen of 2021 belong to an adventive population.



Fig. 2: Bait station with raspberries, Fig. 3: Dorsal view of *L. japonica* with tear-shaped scutellar plate and glandular pit, Fig. 4: Lateral view of *L. japonica* (♀). Pictures by J. Martin, JKI.

## Reference

- [1] Abram, P. K. et al. (2020) *J. Hymenopt. Res.* 78:1-17; [2] Beers, E. H. et al. (2022) *J. Hymenopt. Res.* 91:11-25; [3] Puppato, S. et al. (2020) *Insects* 11:611; [4] CABI Distribution Maps (2022) <https://www.cabi.org/isc/datasheet/109283#toDistributionMaps> (accessed 03.10.22); [5] Forshage M., Nordlander G. (2008) *Insect Sys. Evol.* 39(3):341-359; [6] Novković, B. et al. (2011) *Entomol. Sci.* 14:333-346; [7] Lue, C.-H. et al. (2016) *J. Hymenopt. Res.* 53:35-76; [8] Abram, P. K. et al. (2022) *J. Econ. Entomol.* 115(4):922-942

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