

# Resource Summary Report

Generated by [dkNET](#) on Sep 11, 2026

## Gamma radiation of *Drosophila suzukii* under hypoxia and normoxia atmosphere conditions.

DOI:10.17504/protocols.io.76whrfe

Type: Protocol

### Proper Citation

Fabiana Sassu, Katerina Nikolouli, Rui Pereira, Marc Vreysen, Christian Stauffer, Carlos Cáceres 2019. Gamma radiation of *Drosophila suzukii* under hypoxia and normoxia atmosphere conditions.. protocols.io [dx.doi.org/10.17504/protocols.io.76whrfe](https://dx.doi.org/10.17504/protocols.io.76whrfe)

### Protocol Information

**URL:** <https://dx.doi.org/10.17504/protocols.io.76whrfe>

**Authors:** Fabiana Sassu, Katerina Nikolouli, Rui Pereira, Marc Vreysen, Christian Stauffer, Carlos Cáceres

**Summary:** The sterile insect technique (SIT) is an environmentally friendly control tactic based on the sequential, inundative releases of sterile insects in a targeted area. Recently, this technique has been suggested as a potential complementary control method as part of an area-wide insect pest management program (AW-IPM) against *D. suzukii*. One of the key issues for the SIT application is to determine the radiation dose since the doses used to induce reproductive sterility can vary between sexes and among species. Treating insects with a lower oxygen atmosphere before and during exposure to radiation can mitigate some of the negative physiological effects due to the irradiation. The irradiation of pupae under the oxygen-reduced environments such as hypoxia is routinely used in the SIT operational programs of some tephritid species as it provides radiological protection. This treatment allows to have the sterile pupae already in sealed containers to facilitate their shipment. Therefore, it is crucial to study the effects of irradiation on the reproductive sterility in *D. suzukii* males and females under low-oxygen atmosphere (hypoxia) compare to normal oxygen level conditions (normoxia). .justify:after { content: ""; display:inline-block; width: 100%; } This protocol describes step-by-step the irradiation of *D. suzukii* pupae under hypoxia and normoxia atmosphere conditions. This protocol may be utilized for a further assessment concerning the quality of the sterile versus non-sterile *D. suzukii* adults such as laboratory and/or field behavioral studies. Additionally, the description of the hypoxia treatment in this protocol may allow for the evaluation of the handling and release processes of the sterile males. The adoption of this protocol by different laboratories should increase further studies for the applicability of SIT on *D. suzukii* or for continuing assessments to improve SIT technology and decrease the variability in data between different studies. .justify:after { content: ""; display:inline-block;

width: 100%; }

**Associated Publications:** Sassù F, Nikolouli K, Pereira R, Vreysen MJB, Stauffer C, Cáceres C (2019) Irradiation dose response under hypoxia for the application of the sterile insect technique in *Drosophila suzukii*. PLoS ONE 14(12): e0226582. doi: [10.1371/journal.pone.0226582](https://doi.org/10.1371/journal.pone.0226582)

**Affiliations:** Universität für Bodenkultur Wien, Insect Pest Control Subprogramme, Joint FAO/IAEA Division of Nuclear Techniques in Food and Agriculture; Universität für Bodenkultur Wien, Insect Pest Control Subprogramme, Joint FAO/IAEA Division of Nuclear Techniques in Food and Agriculture, Insect Pest Control Subprogramme, Joint FAO/IAEA Division of Nuclear Techniques in Food and Agriculture, Universität für Bodenkultur Wien, Insect Pest Control Subprogramme, Joint FAO/IAEA Division of Nuclear Techniques in Food and Agriculture

**External URL:** <https://doi.org/10.1371/journal.pone.0226582>

**Version:** 1

**Publication Date:** 2019

**Proper Citation:** Fabiana Sassu, Katerina Nikolouli, Rui Pereira, Marc Vreysen, Christian Stauffer, Carlos Cáceres 2019. Gamma radiation of *Drosophila suzukii* under hypoxia and normoxia atmosphere conditions.. protocols.io dx.doi.org/10.17504/protocols.io.76whrfe

**Record Creation Time:** 20210329T220535+0000

**Record Last Update:** 20210329T221026+0000

---

## Data and Source Information

**Source:**