DRAFT ANNEX TO ISPM 28: Cold treatment for *Zeugodacus tau* on *Citrus* *sinensis* (2023-004)

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| **Status box** |
| This is not an official part of the standard and it will be modified by the IPPC Secretariat after adoption. |
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| **Document category** | Draft annex to ISPM 28 |
| **Current document stage** | *To* 2024-06 Technical Panel on Phytosanitary Treatments (TPPT) meeting |
| **Major stages** | 2023-06 Treatment submitted in response to 2017-02 Call for treatments.2023-08 Technical Panel on Phytosanitary Treatments (TPPT) reviewed the submission (virtual meeting).2023-09 Submitter supplied additional information.2023-10 TPPT discuss the draft PT2024-05 Secretariat requested additional information from submitter 2024-05 Submitter replied no further work will be done2024-06 TPPT discuss the draft PT (if necessary) |
| **Treatment Lead** | 2023-08 Mr Toshiyuki DOHINO (JP) |
| **Notes** |  |

Scope of the treatment[[1]](#footnote-2)

1. This treatment describes the cold treatment of fruit of *Citrus* *sinensis*1 (orange) to prevent the emergence of adults of *Zeugodacus tau* at the stated efficacy.[[2]](#footnote-3)

Treatment description

1. **Name of treatment** Cold treatment for *Zeugodacus tau* on *Citrus sinensis*
2. **Active ingredient** n/a
3. **Treatment type** Physical (cold)
4. **Target pest** *Zeugodacus tau* (Walker, 1849) (Diptera: Tephritidae)
5. **Target regulated articles** Fruit of *Citrus sinensis*

Treatment schedule

1. 1.2 °C or below for 22 continuous days.
2. There is 95% confidence that the treatment according to this schedule prevents the emergence of not less than 99.9915% of adults of *Zeugodacus tau*.
3. The fruit must reach the treatment temperature before treatment exposure time commences. The fruit core temperature should be monitored and recorded, and the temperature should not exceed the stated level throughout the duration of the treatment.
4. This treatment should be applied in accordance with the requirements of ISPM 42 (*Requirements for the use of temperature treatments as phytosanitary measures*).

Other relevant information

1. In evaluating this treatment the Technical Panel on Phytosanitary Treatments (TPPT) considered issues associated with temperature regimes and thermal conditioning, taking into account the work of Hallman and Mangan (1997).
2. The efficacy of this schedule was calculated based on 35 275 third instar larvae treated with no ~~survivors~~ adult emergence. Four larvae survived but failed to emerge as adults.
3. This schedule was based on the work of Dias et al. (2023) and was developed using the cultivar “Navel” orange and using failure of adult emergence as a treatment endpoint. The study evaluated four populations of *Zeugodacus tau* from India, China (two), and Bangladesh. The TPPT also considered information on fruit core temperature data during confirmatory tests submitted from authors.

References

1. The present annex may refer to ISPMs. ISPMs are available on the International Phytosanitary Portal (IPP) at <https://www.ippc.int/core-activities/standards-setting/ispms>.

**Hallman, G.J. & Mangan, R.L.** 1997**.** Concerns with temperature quarantine treatment research.

In: G.L. Obenauf, ed. 1997 Annual International Research Conference on Methyl Bromide Alternatives and Emissions Reduction. San Diego, CA, 3–5 November 1997, pp. 79-1–79-4.

**Dias, V. S., G.J. Hallman, A.S. Araujo, I.V.G. Lima, F.L. Galvao-Silva, L.A. Caravantes, M.N.G. Rivera, J.S. Aguilar, C.E. Caceres-Barrios, M.J.B. Vreysen & S.W. Myers.** 2023. High cold tolerance and differential population response of third instars from the *Zeugodacus tau* complex to phytosanitary cold treatment in navel oranges. Postharvest Biology and Technology 203. doi.org/10.1016/j.postharvbio. 2023.112392.

**ADD Literature showing the most cold-**tolerant stage in orange

1. *Citrus* species and hybrids are named according to the nomenclature in Cottin, R. 2002. *Citrus of the world: A citrus directory*, version 2.0. France, SRA INRA-CIRAD. [↑](#footnote-ref-2)
2. The scope of phytosanitary treatments does not include issues related to pesticide registration or other domestic requirements for contracting parties’ approval of treatments. Treatments adopted by the Commission on Phytosanitary Measures may not provide information on specific effects on human health or food safety, which should be addressed using domestic procedures before contracting parties approve a treatment. In addition, potential effects of treatments on product quality are considered for some host commodities before their international adoption. However, evaluation of any effects of a treatment on the quality of commodities may require additional consideration. There is no obligation for a contracting party to approve, register or adopt the treatments for use in its territory. [↑](#footnote-ref-3)