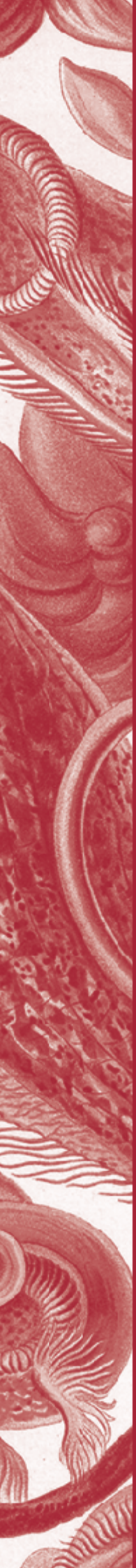
Food and Agriculture Organization of the United Nations

International Plant Protection Convention
Protecting the world's plant resources from pests

ISPM 28
ANNEX 30

ENG



INTERNATIONAL STANDARD FOR PHYTOSANITARY MEASURES 28

PHYTOSANITARY TREATMENT

PT 30: Vapour heat treatment for *Ceratitis capitata* on *Mangifera indica*

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This phytosanitary treatment was adopted by the Twelfth Session of the Commission on Phytosanitary Measures in 2017.
The annex is a prescriptive part of ISPM 28.

ISPM 28
Phytosanitary treatments for regulated pests

PT 30: Vapour heat treatment for *Ceratitis capitata* on *Mangifera indica*

Adopted 2017; published 2017

Scope of the treatment

This treatment describes the vapour heat treatment of fruit of *Mangifera indica* to result in the mortality of eggs and larvae of *Ceratitis capitata* at the stated efficacy[1].

Treatment description

Name of treatment	Vapour heat treatment for *Ceratitis capitata* on *Mangifera indica*
Active ingredient	n/a
Treatment type	Physical (vapour heat)
Target pest	*Ceratitis capitata* (Wiedemann, 1824) (Diptera: Tephritidae)
Target regulated articles	Fruit of *Mangifera indica* L.

Treatment schedule

Exposure in a vapour heat chamber:

- at a minimum of 95% relative humidity
- with air temperature increasing from room temperature to 47 °C or above
- for at least two hours or until fruit core temperature reaches 46.5 °C
- followed by ten minutes at a minimum of 95% relative humidity in a minimum air temperature of 47 °C and with fruit core temperature maintained at a minimum of 46.5 °C (of largest fruit).

Once the treatment is complete, fruits may be hydro-cooled to reach ambient temperature.

There is 95% confidence that the treatment according to this schedule kills not less than 99.9968% of eggs and larvae of *Ceratitis capitata*.

Other relevant information

In evaluating this treatment the Technical Panel on Phytosanitary Treatments considered issues associated with temperature regimes and thermal conditioning, taking into account the work of Hallman and Mangan (1997).

This schedule was based on the work of Heather *et al.* (1997) and was developed using the cultivar "Kensington Pride", and using failure to pupariate as the measure of mortality.

[1] 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.

The egg stage was found to be the most thermotolerant among pre-puparial stages of *C. capitata* at temperatures from 41 ºC to 44 ºC; however, at 45 ºC, the third instar appeared to be slightly more thermotolerant.

References

The present annex to the standard may refer to International Standards for Phytosanitary Measures (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, pp. 79-1–79-4.

Heather, N.W., Corcoran, R.J. & Kopittke, R.A. 1997. Hot air disinfestation of Australian 'Kensington' mangoes against two fruit flies (Diptera: Tephritidae). *Postharvest Biology and Technology*, 10: 99–105.

Publication history

This is not an official part of the standard

2007-03 CPM-2 added topic *Fruit fly treatments*.

2010-04 Vapour heat treatment for *Ceratitis capitata* on *Mangifera indica* (2010-106) submitted in response to 2009-12 call for treatments.
2010-07 TPPT reviewed treatment and requested additional information from the Submitter.
2012-02 TPPT requested additional information from Submitter.
2012-12 TPPT requested additional information from Submitter.
2013-02 TPPT sent final notice letter to Submitter through Secretariat.
2013-05 Submitter provided additional information.
2013-07 TPPT reviewed the draft and the additional information provided by the Submitter and recommended to SC for member consultation.
2014-02 SC approved for member consultation via e-decision (2014_eSC_May_04).
2014-07 Member consultation.
2015-11 SC assigned "pending" status.
2016-07 Modified by Treatment lead in response to consultation comments.
2016-09 TPPT decided that despite any possible differences in reaction to VHT existing among populations of *C. capitata*, the robustness of this treatment as exemplified by the very large number (> 165,000) of eggs (the most tolerant stage) treated in confirmatory testing compensated for any differences and thus recommended it to the SC.
2016-09 TPPT approval of responses to consultation comments via e-decision (2016_eTPPT_Sep_01).
2016-11 SC recommended to CPM-12 for adoption via e-decision (2016_eSC_Nov_12).
2017-04 CPM adopted the phytosanitary treatment.

ISPM 28. **Annex 30**. *Vapour heat treatment for* Ceratitis *capitata on* Mangifera indica (2017). Rome, IPPC, FAO.

Publication history last updated: 2017-04

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IPPC

The International Plant Protection Convention (IPPC) is an international plant health agreement that aims to protect cultivated and wild plants by preventing the introduction and spread of pests. International travel and trade are greater than ever before. As people and commodities move around the world, organisms that present risks to plants travel with them.

Organization

- There are over 180 contracting parties to the IPPC.
- Each contracting party has a national plant protection organization (NPPO) and an Official IPPC contact point.
- Nine regional plant protection organizations (RPPOs) work to facilitate the implementation of the IPPC in countries.
- IPPC liaises with relevant international organizations to help build regional and national capacities.
- The Secretariat is provided by the Food and Agriculture Organization of the United Nations (FAO).

International Plant Protection Convention (IPPC)

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