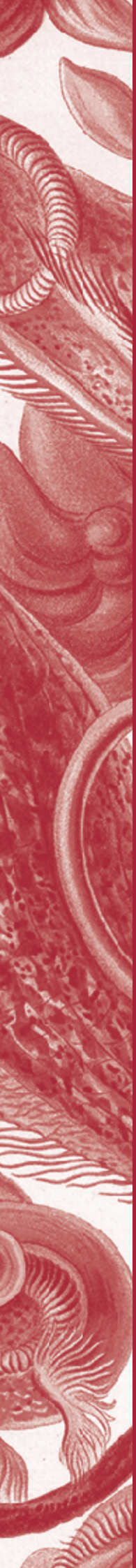
Food and Agriculture Organization of the United Nations

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

ISPM 28
ANNEX 31

ENG



INTERNATIONAL STANDARD FOR PHYTOSANITARY MEASURES 28

PHYTOSANITARY TREATMENT

PT 31: Vapour heat treatment for *Bactrocera tryoni* 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 31: Vapour heat treatment for *Bactrocera tryoni* 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 *Bactrocera tryoni* at the stated efficacy[1].

Treatment description

Name of treatment	Vapour heat treatment for *Bactrocera tryoni* on *Mangifera indica*
Active ingredient	n/a
Treatment type	Physical (vapour heat)
Target pest	*Bactrocera tryoni* (Froggatt, 1897) (Diptera: Tephritidae)
Target regulated articles	Fruit of *Mangifera indica* L.

Treatment schedule

Exposure in a vapour heat chamber:

- with air temperature increasing from room temperature to 48 °C or above
- with air temperature held at 48 °C or above at a minimum of 95% relative humidity for a minimum of 90 minutes to achieve fruit core temperature of 47 °C or above
- followed by 15 minutes at a minimum of 95% relative humidity in a minimum air temperature of 48 °C and with fruit core temperature maintained at a minimum of 47 °C (of the largest fruit).

Once the treatment is complete, fruit may be air-cooled or cooled by an ambient temperature water drench.

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

Other relevant information

This schedule was based on the work of Corcoran (2002), Corcoran *et al.* (2000), Heather *et al.* (1991, 1994, 1997) and Queensland Department of Primary Industries (1999) and was developed using the cultivars “Kensington Pride” and “Keitt”, 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.

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.

Corcoran, R.J. 2002. *Fruit fly (Diptera: Tephritidae) responses to quarantine heat treatment.* The University of Queensland, Brisbane, Australia. (PhD thesis)

Corcoran, R.J., Jordan, R.A., Peterson, P.M., Eelkema, M., Heslin, L.M. & Jen, E.V. 2000. *Disinfestation of additional mango varieties for export to Japan*. Gordon, Australia, Horticultural Research and Development Corporation.

Heather, N.W., Corcoran, R.L., Heard, T., Jacobi, K. & Coates, L. 1991. *Disinfestation of mangoes against Queensland fruit fly by vapour heat.* A Queensland Department of Primary Industries report to the Japanese Ministry of Agriculture, Forestry and Fisheries through the Commonwealth of Australia Department of Primary Industries and Energy.

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.

Heather, N.W., Jordan, R. & Corcoran, R.J. 1994. *Verification trials for vapour heat disinfestation of mangoes infested with fruit flies.* A Queensland Department of Primary Industries report to the Japanese Ministry of Agriculture, Forestry and Fisheries through the Commonwealth of Australia Department of Primary Industries and Energy.

Queensland Department of Primary Industries. 1999. *Verification trial against Queensland fruit fly,* Bactrocera tryoni *(Frogatt), in Keitt mangoes using vapour heat treatment.* A Queensland Department of Primary Industries report to the Japanese Ministry of Agriculture, Forestry and Fisheries through the Commonwealth of Australia Department of Primary Industries and Energy.

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 *Bactrocera tryoni* on *Mangifera indica* (2010-107) submitted in response to 2009-12 call for treatments.

2010-07 TPPT reviewed the draft and requested additional information from Submitter.

2012-02 TPPT reviewed Submitter response and requested further information.

2013-07 TPPT reviewed Submitter response and requested further information.

2014-06 TPPT reviewed Submitter response and recommended draft to SC for member consultation.

2014-08 SC approved for member consultation via e-decision (2014_eSC_Nov_08).

2015-07 Member consultation.

2016-09 TPPT agreed that there were no differences for mango varieties, but that the differences in treatment effectiveness were given by weight and shape of the fruit, thus TPPT modified the treatment to include a requirement on the ramp-up time and recommended it to the SC for adoption.

2016-11 SC recommended to CPM-12 for adoption via e-decision (2016_eSC_Nov_13) 2017-04 CPM adopted the phytosanitary treatment.

ISPM 28. **Annex 31**. *Vapour heat treatment for* Bacatrocera tryoni *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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