[PleaseReview document review. Review title: 2023 First consultation: Draft annex to ISPM 28: Vapour heat treatment for Planococcus lilacinus (2021-028). Document title: 2021-028\_Draft\_PT\_VHTPlanococcus\_2023-05-08\_en.docx]

[1]Draft ANNEX to ISPM 28: Vapour heat treatment for *Planococcus lilacinus* (2021-028)

[2]**Status box**

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| [3]*This is not an official part of the annex to the standard and it will be modified by the IPPC Secretariat after adoption.* | |
| [4]**Date of this document** | [5]2024-05-24 |
| [6]**Document category** | [7]Draft annex to ISPM 28 |
| [8]**Current document stage** | [9]*To* 2024-06 TPPT meeting |
| [10]**Major stages** | [11]2021-02 Treatment *Vapor heat treatment of dragon fruit (*Selenicereus undatus *(Haworth) D.R. Hunt) for* Planococcus lilacinus *(Cockerell)* submitted in response to standing call for treatments.  [12]2022-05 SC added *Vapour heat treatment of* Planococcus lilacinus *on* Selenicereus undatus (2021-028) to the work programme of the Technical Panel on Phytosanitary Treatments (TPPT) with priority 1.  [13]2021-11 TPPT reviewed and requested further information from submitter.  [14]2022-08 Further information provided by submitter.  [15]2022-09 TPPT reviewed responses from submitter, revised the draft treatment and recommended it to the SC for consultation.  [16]2023-05 SC approved for consultation via e-decision (2023\_eSC\_Nov\_01)  [17]2024-02 TPPT agreed to request additional information  *2024-06- TPPT* reviewed treatment |
| [18]**Treatment Lead** | [19]2021-11 Michael ORMSBY (NZ) |
| [20]**Notes** | [21]2023-05 Edited |

[22]

[23]Scope of the treatment

[24]This treatment describes the vapour heat treatment of host commodities of *Planococcus lilacinus* to result in the mortality of alllife stages of *Planococcus lilacinus* at the stated efficacy.[[1]](#footnote-1)

[26]Treatment description

[27]**Name of treatment** Vapour heat treatment for *Planococcus lilacinus*

[28]**Active ingredient** n/a

[29]**Treatment type** Physical (vapour heat)

[30]**Target pest** *Planococcus lilacinus* (Cockerell, 1905) (Hemiptera: Pseudococcidae)

[31]**Target regulated articles** Host commodities of *Planococcus lilacinus*

[32]Treatment schedule

[34]Exposure in a vapour heat chamber:

* [35]at a minimum of 95% relative humidity;
* [36]with air temperature at 50 °C or above; and
* [37]for 70 minutes once the commodity surface temperature has reached 49 °C.

[38]Once the treatment is complete, fruits may be air-cooled using ambient air.

[39]There is 95% confidence that the treatment according to this schedule kills not less than 99.9910% of all life stages of *Planococcus lilacinus*.

This treatment should be applied in accordance with the requirements of ISPM 42 (*Requirements for the use of temperature treatments as phytosanitary measures*).

[40]Other relevant information

[41]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).

[33]Preheating of the commodity to 25 °C before treatment may be required to prevent surface condensation.

[42]This schedule is based on the work of Ren *et al.* (2021) and was developed using fruit of *Selenicereus undatus* from the cultivar ‘Meilong’, and using life-stage mortality as the measure of mortality.

[43]All life stages were tested except the egg stage, as *Planococcus lilacinus* is mostly ovoviviparous (eggs hatch before laying).

[44]The efficacy of this schedule was calculated based on a total of 33 195 female adults of *Planococcus lilacinus* treated with no survivors.

[45]Extrapolation of treatment efficacy to all host commodities was based on knowledge and experience that surface pests are exposed to the heat regardless of the nature of the host with which they are associated, and evidence from research studies on a variety of pests and commodities. These include studies on the thermal death kinetics of insects (Neven, 2000; Wang, Tang and Hansen, 2007). It is recognized, however, that treatment efficacy has not been tested for all potential hosts of the target pest. If evidence becomes available to show that the extrapolation of the treatment to cover all hosts of this pest is incorrect, then the treatment will be reviewed.

[46]References

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

[48]**Hallman, G.J. & Mangan, R.L.** 1997. Concerns with temperature quarantine treatment research. In: G.L. Obenauf, ed. *Proceedings of the 1997 Annual International Research Conference on Methyl Bromide Alternatives and Emissions Reduction*, San Diego, CA, 3–5 November 1997, pp. 79-1–79-4. Fresno, USA, Methyl Bromide Alternatives Outreach. [hwww.mbao.org/static/docs/confs/1997-sandiego/papers/079hallman.pdf](https://www.mbao.org/static/docs/confs/1997-sandiego/papers/079hallman.pdf)

[49]**Neven L.G.** 2000. Physiological responses of insects to heat. *Postharvest Biology and Technology*, 21(1): 103–111. <https://doi.org/10.1016/S0925-5214(00)00169-1>

[50]**Ren, L., Qian, L., Xue, M., Peng, C., Chen, N., Zhan, G. & Liu, B.** 2021. Vapor heat treatment against *Planococcus lilacinus* Cockerell (Hemiptera: Pseudococcidae) on dragon fruit. *Pest Management Science*, 78: 150–158. <https://doi.org/10.1002/ps.6616>

[51]**Wang, S., Tang, J. & Hansen, J.D.** 2007. Experimental and simulation methods of insect thermal death kinetics. In: J. Tang, E. Mitcham, S. Wang, S. Lurie, eds. *Heat treatments for postharvest pest control*, pp. 105–132. CABI. <https://doi.org/10.1079/9781845932527.0105>

[52]**Potential implementation issues**

[53]This section is not part of the standard. The Standards Committee in May 2016 requested the Secretariat to gather information on any potential implementation issues related to this draft. Please provide details and proposals on how to address these potential implementation issues.

1. [25] 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-1)