DRAFT ANNEX TO ISPM 28: Irradiation treatment for *Carposina sasakii* (2017-026)

Scope of the treatment

This treatment describes the irradiation of fruits and vegetables at 228 Gy minimum absorbed dose to prevent the emergence of viable adults of *Carposina sasakii* at the stated efficacy.  

Treatment description

**Name of treatment**  
Irradiation treatment for *Carposina sasakii*

**Active ingredient**  
n/a

**Treatment type**  
Irradiation

**Target pest**  
*Carposina sasakii* Matsumura 1900 (Lepidoptera: Carposinidae)

**Target regulated articles**  
All fruits and vegetables that are hosts of *Carposina sasakii*
Treatment schedule

Minimum absorbed dose of 228 Gy to prevent the emergence of viable adults of Carposina sasakii.

There is 95% confidence that the treatment according to this schedule prevents development of viable adults from not less than 99.9893% of eggs and larvae of Carposina sasakii.

This treatment should be applied in accordance with the requirements of ISPM 18 (Guidelines for the use of irradiation as a phytosanitary measure).

This treatment should not be applied to fruits and vegetables stored in modified atmospheres because modified atmospheres may affect the treatment efficacy.

Other relevant information

Because irradiation may not result in outright mortality, inspectors may encounter live but non-viable Carposina sasakii eggs, larvae or deformed adults during the inspection process. This does not imply a failure of the treatment.

The Technical Panel on Phytosanitary Treatments based its evaluation of this treatment on the research reported by Zhan et al. (2014), which determined the efficacy of irradiation as a treatment for this pest in Malus pumila ‘Red Fuji’. Additional information was also considered from Li et al. (2016).

The efficacy of this schedule was calculated based on a total of 30 580 late fifth-instar larvae treated with no viable adult emergence; the control emergence was 91.4%.

Extrapolation of treatment efficacy to all fruits and vegetables was based on knowledge and experience that radiation dosimetry systems measure the actual radiation dose absorbed by the target pest independent of host commodity, and evidence from research studies on a variety of pests and commodities. These include studies on the following pests and hosts: Anastrepha fraterculus (Eugenia uvalha, Malus pumila, and Mangifera indica); A. ludens (Citrus paradisi, Citrus sinensis, and M. indica and artificial diet), A. obliqua (Averrhoa carambola, C. sinensis, and Psidium guajaba); A. suspensa (A. carambola, C. paradisi and M. indica), Bactrocera tryoni (C. sinensis, Solanum lycopersicum, Malus domestica, M. indica, Persea americana and Prunus avium), Pseudococcus jackbeardsleyi (Cucurbita sp. and Solanum tuberosum), Tribolium confusum (Triticum aestivum, Hordium vulgare and Zea mays), Cydia pomonella (M. pumila and artificial diet) and Grapholita molesta (M. pumila and artificial diet) (Bustos et al., 2004; Gould and von Windeguth, 1991; Hallman, 2004a, 2004b, 2013; Hallman and Martinez, 2001; Hallman et al., 2010; Jessup et al., 1992; Mansour, 2003; Tuncbilek and Kansu, 1966; von Windeguth, 1986; von Windeguth and Ismail, 1987; Zhan et al., 2016). It is recognized, however, that treatment efficacy has not been tested for all potential fruit and vegetable 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, the treatment will be reviewed.

References


Hallman, G.J. 2004a. Ionizing irradiation quarantine treatment against oriental fruit moth (Lepidoptera: Tortricidae) in ambient and hypoxic atmospheres. Journal of Economic Entomology, 97: 824–827.


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