Mini data sheet on *Aleurothrixus trachoides* (Hemiptera: Aleyrodidae)

Added to the EPPO Alert List in 2015 – Deleted in 2018

Reasons for deletion:
Aleurothrixus trachoides was identified as a potential risk during the EPPO study on pest risks associated with the import of tomato fruit (2015). A PRA was conducted in 2017 and concluded that the risk was low for the EPPO region. In 2018-06, the Working Party on Phytosanitary Regulations agreed that it could be deleted from the Alert List.

Why: *Aleurothrixus* (=*Aleurotrachelus) trachoides* (Hemiptera: Aleyrodidae) was identified in the EPPO study on pest risks associated with the import of tomato fruit as possibly presenting a risk for the EPPO region. This whitefly species was later selected as a priority for PRA by the EPPO Panel on Phytosanitary measures. An EPPO Expert Working Group will meet in December 2015 to conduct PRAs on several tomato pests, including *A. trachoides*.

Where: *A. trachoides* is native from the Neotropical region; it has spread to the Pacific, and there are recent findings in Africa.
EPPO region: absent
Africa: Gambia (unconfirmed), Mozambique, Nigeria, Reunion.
Asia: India (Karnataka).
North America: Mexico, USA (California, Florida, Hawaii, Louisiana, Texas).
Central America and Caribbean: Antigua and Barbuda, Bahamas, Barbados, Belize, Cayman Islands, Costa Rica, Cuba, Dominica, Dominican Republic, El Salvador, Guadeloupe, Guatemala, Haiti, Honduras, Jamaica, Martinique, Netherlands Antilles (Curaçao), Nicaragua, Panama, Puerto Rico, Trinidad and Tobago, Virgin Islands (US).
South America: Brazil (Bahia, Rio do Janeiro), Colombia, Ecuador (Galapagos), French Guiana, Guyana, Peru, Suriname, Venezuela.
Oceania: Fiji, French Polynesia (Rangiroa, Tahiti), Guam, Micronesia (Kosrae island). There are also unconfirmed reports from Nauru and Tonga.

On which plants: *A. trachoides* is a polyphagous species with a preference for Solanaceae and Convolvulaceae. Solanaceous hosts include major cultivated species such as *Capsicum* spp*., Solanum lycopersicum* (tomato)*, S. melongena* (aubergine), *Nicotiana tabacum* (tobacco), ornamentals (*Cestrum, S. pseudocapsicum, S. seaforthianum*) and wild plants/weeds (*Datura stramonium, S. nigrum*). The pest seems to be attacking mainly *Capsicum* spp., and to a lesser extent *S. melongena* and *S. lycopersicum*. The importance of host plants belonging to other families is not clear, but *A. trachoides* has been reported on cultivated plants such as, *Annona* spp., *Citrus limon* (lemon), *Colocasia esculenta* (taro), *Ipomoea batatas* (sweet potato), *Persea americana* (avocado), *Psidium guajava* (guava), *Theobroma cacao* (cocoa), and *Rosa*.

Damage: *A. trachoides* mostly feed on leaves and young shoots, but fruit can also be attacked. Direct damage is caused by larvae and adults feeding on large quantities of sap. Symptoms may include plant stunting, and for fruiting species, a lower fruit production (i.e. smaller number of fruits with incomplete development). Indirect damage is caused by sooty moulds developing on honeydew secreted by the insect. This may reduce photosynthesis, as well as the aesthetic and economic value of the plants. A. *trachoides* is not known to be a virus vector.
Adults are 1-2 mm long and a large part of their body is covered with white waxy secretions. Nymphs are black and partly covered by thick cottony white filaments. Females lay eggs on the lower surface of young leaves. Eggs are initially white or yellowish, becoming grey to

brown. They are oblong and glued to the leaf by a short peduncle. First stage larvae are flat and round, and usually stay on the leaf on which they were laid. The second to fourth larval stages, as well as puparia also develop on the leaves. Adults can fly over short distances (especially when they are disturbed) but they are also readily transported by the wind or on clothes. No details could be found on the duration of life cycle, temperature and humidity requirements of *A. trachoides*.

Dissemination: over short distances, actively flying or wind-carried adults can disseminate the species. Over longer distances, trade of infested plants can spread all stages of the pest. *A. trachoides* has been intercepted by several countries (e.g. United Kingdom, USA) on different types of leafy vegetables and ornamentals.

Pathway: plants for planting, fruits and vegetables (including leaves), cut flowers of host plants from countries where *A. trachoides* occurs.

Possible risks: solanaceous crops such as capsicum, aubergines and tomatoes are widely grown in the EPPO region. The climatic similarity according to the 'EPPO study on pest risks associated with the import of tomato fruit' between the area where *A. trachoides* occurs and the EPPO region is low to medium (*A. trachoides* is a Nearctic species), but the pest might find suitable conditions under glasshouse conditions. Control of whiteflies can be difficult in both outdoor and protected crops. In the literature, several *Encarsia* species (e.g. *Encarsia cubensis, E. formosa, E. hispida, E. nigricephala, E. pergandiella, E. tabacivora*) are reported to parasitize *A. trachoides*, but there is no data about their potential use as biocontrol agents in practice. Although data is generally lacking about the economic impact of *A. trachoides*, it seems desirable to avoid the introduction of another whitefly species in the EPPO region which might disrupt the existing IPM strategies that are already in place.

Sources

Anonymous (2014) Whiteflies in Micronesia. Forest Health. 2013 highlights. USDA Forest Service, p 2. http://www.fs.fed.us/foresthealth/fhm/fhh/fhh_13/PI_FHH_2013.pdf

Dubey AK, Sundararaj R (2015) A new combination and first record of the genus *Aleurothrixus* Quaintance and Baker (Hemiptera: Aleyrodidae) from India. *Biosystematica* **9**(1/2), 23-28.

Dumbleton LJ (1961) Aleyrodidae (Hemiptera: Homoptera) from the South Pacific. *New Zealand Journal of Science 4*(4), 770-774.

EPPO (2015) EPPO Study on Pest Risks Associated with the Import of Tomato Fruit. EPPO Technical Document no. 1068. Available at http://www.eppo.int

Evans GA (2007) The whiteflies (Hemiptera: Aleyrodidae) of the world and their host plants and natural enemies. USDA/Animal Plant Health Inspection Service (APHIS). http://keys.lucidcentral.org/keys/v3/whitefly/PDF_PwP%20ETC/world-whitefly-catalog-Evans.pdf

Ferreira Jr AJ, de Aguiar LA, Racca Fils F, de Lima AF (2008) Sobra a ocorrência de *Aleurotrachelus trachoides* (Back, 1912) (Hemiptera: Aleyrodidae) no estado do Rio de Janeiro. Abstract of a paper presented at the XXII Congresso Brasileiro de Entomologia (Uberlândia, Mato Grosso, BR, 2008-08-24/29). http://seb.web2130.uni5.net/asp/eventos/CBE/XXIICBE/resumos/R1822-2.html

Hodges GS, Evans GA (2005) An identification guide to the whiteflies (Hemiptera: Aleyrodidae) of the Southeastern United States. *Florida Entomologist* 88(4), 518-534.

INTERNET

- Charles Darwin Foundation. Galapagos species checklist. http://checklists.datazone.darwinfoundation.org/introduced-species/introducedinvertebrates/aleurotrachelus-trachoides-back-1912/
- Whitefly pupa of the world. Compendium and key to the Genera of the Aleurodicinae & the Aleyrodinae by John Dooley. http://keys.lucidcentral.org/keys/v3/whitefly/key/Aleyrodid%20Pupal%20Key%20to%20the%20Genera/Media/Html/Aleurotrachelus.htm

Malumphy C (2005) The Neotropical solanum whitefly, *Aleurotrachelus trachoides* (Back) (Hem., Aleyrodidae), intercepted in the U.K. on sweet potato leaves imported from Gambia. *Entomologist's Monthly Magazine* 141, p 94.

Martin JH (2005) Whiteflies of Belize (Hemiptera: Aleyrodidae) Part 2 - A review of the subfamily Aleyrodinae Westwood. *Zootaxa* **1098**, 100 pp.

Mifsud D, Cocquempot C, Mühlethaler R, Wilson M, Streito J-C (2010) Other Hemiptera Sternorrhyncha (Aleyrodidae, Phylloxeroidea, and Psylloidea) and Hemiptera Auchenorrhyncha Chapter 9.4. *BioRisk* **4**(1), 511–552.

Morales VP, Cermeli M, Godoy F, Salas B (2003) Lista de insectos relacionados a las solanáceas ubicados en el Museo de Insectos de Interés Agrícola del CENIAP-INIA. *Entomotropica* **18**(3), 193-209.

Myartseva SN, Ruíz Cancino E, Coronado Blanco JM (2012) Aphelinidae (Hymenoptera: Chalcidoidea) de importancia agrícola en México. Revisión y claves. Serie avispas parasiticas de plagas y otros insectos no. 8. Universidad Autónoma de Tamaulipas, Mexico, 413 pp.

EPPO RS 2015/208, 2016/209