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## **First record of the solanum whitefly *Aleurothrix trachoides* (Back, 1912) (Hemiptera: Aleyrodidae) from Kenya**

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## SHORT COMMUNICATION

# First record of the solanum whitefly *Aleurothrixus trachoides* (Back, 1912) (Hemiptera: Aleyrodidae) from Kenya

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## Abstract

The solanum whitefly *Aleurothrixus trachoides* (Back, 1912) (Hemiptera: Aleyrodidae), a pest of economic importance, is newly recorded from Kenya, collected on *Capsicum annum*. A description and images are included along with known host plants, to aid in the identification of this species. Also included are information and comments regarding the species' status as an economically important pest.

**Key words:** Africa, distribution, invasive species, pest species, Sternorrhyncha.

## Zusammenfassung

Der Nachtschatten-Mottenschildlaus oder Weißen Fliege *Aleurothrixus trachoides* (Back, 1912) (Hemiptera: Aleyrodidae), eines wirtschaftlich bedeutenden Schädling, wird erstmals für Kenia berichtet. Diese wurde auf *Capsicum annum* gesammelt. Eine Beschreibung und Bilder sind zusammen mit bekannten Wirtspflanzen enthalten, um die Identifizierung dieser Art zu erleichtern. Außerdem sind Informationen und Kommentare zum Status der Art als wirtschaftlich wichtiger Schädling enthalten.

The solanum whitefly *Aleurothrixus trachoides* (Back, 1912) was originally described from Cuba, and has spread to Gambia (albeit unconfirmed), Mozambique, Nigeria, and La Réunion in Africa as a pest (EPPO 2018). It is here recorded from Kenya for the first time and is the second species of *Aleurothrixus* Quaintance & Baker, 1914 recorded from Kenya, adding to the 39 species of Aleyrodidae currently recorded there (GBIF 2024). Of these, 17 are pest species (CABI 2024), including the major cassava pests *Aleurodicus dispersus* Russel, 1965, *Bemisia afer* (Priesner & Hosny, 1934), *Bemisia tabaci* (Gennadius, 1889), and *Paraleyrododes bondari* (Peracchi, 1971) (MUNGUTI et al. 2021), as well as other significant pests such as *Aleurocanthus spiniferus* (Quaintance, 1903), *Aleurocanthus woglumi* Ashby, 1915, *Aleurodicus dispersus* Russell, 1965, *Aleurothrixus floccosus* (Maskell, 1895), *Aleyrododes prolella* (Linnaeus, 1758), and *Trialeurodes vaporariorum* Westwood, 1856 (CABI 2024).

***Aleurothrixus trachoides* (Back, 1912)**

*Aleyrododes trachoides* Back, 1912: 151–153.

*Aleurotrachelus trachoides* (Back, 1912): QUAINANCE & BAKER (1914: 103).

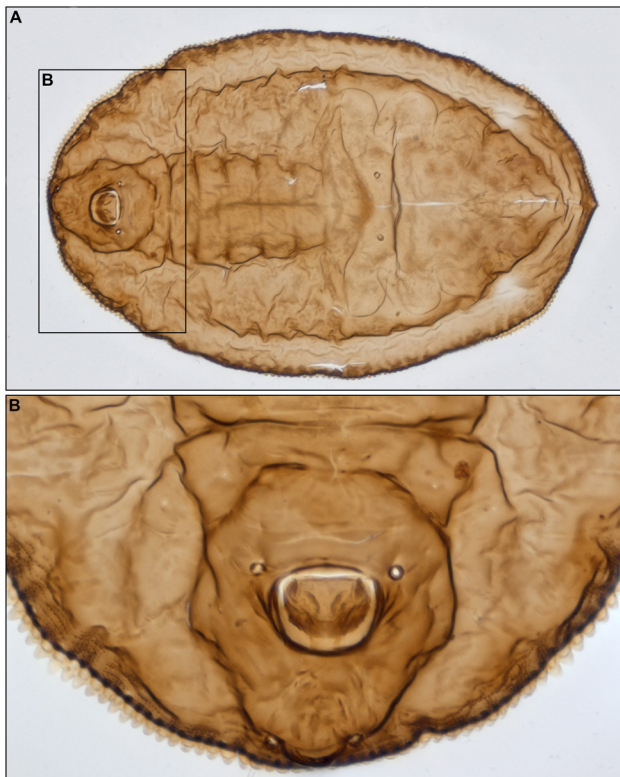
*Aleurothrixus trachoides* (Back, 1912): DUBEY & SUNDARARAJ (2015: 23–28).

**Material examined.** Kenya: Kwale, Ramisi, Kiliani, "Farm 2", on *Capsicum annum* (chili pepper), 14.II.2020, 4.41072°S

39.38366°E, 140 m, A. POLASZEK (Natural History Museum, London, UK). Material deposited in the Natural History Museum, London, UK.

**Distribution** (EPPO 2018). Africa: Gambia (unconfirmed; UK interception on sweet potato imported from Gambia), Mozambique, Nigeria, La Réunion. 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 de Janeiro), Colombia, Cuba, Ecuador (Galapagos), French Guiana, Guyana, Peru, Suriname, Venezuela. Oceania: Fiji, French Polynesia (Rangiroa, Tahiti), Guam, Micronesia (Kosrae Island), Nauru (unconfirmed), Tonga (unconfirmed).

**Host plants** (EVANS 2007; AVERY et al. 2020; IPNI 2023): Annonaceae: *Annona muricata* L., *Annona reticulata* L.; Apiaceae: *Apium graveolens* L.; Apocynaceae: *Tabernaemontana divaricata* (L.) R.Br. ex Roem. & Schult; Araceae: *Syngonium podophyllum* Schott, *Xanthosoma sagittifolium* (L.) Schott; Araceae: *Chamaedorea elegans* Mart., *Chamaedorea* Willd. sp., *Cocos nucifera* L., *Dypsis lutescens* (Wendland) Beentje & Dransfield (= *Chrysalidocarpus lutescens*), *Veitchia merrillii* Becc. (= *Adonia merrillii*); Asteraceae: *Bidens pilosa* L., *Mikania cordifolia* (L.f.) Willd.; Bignoniaceae: *Tabebuia glomerata* (= *Handroanthus capitatus*) Urb., *Tabebuia pallida* (Lindl.) Miers; Boraginaceae: *Cordia collococca* (= *Bourreria succulenta*) L.; Caesalpiniaceae: *Bauhinia divaricata* L.; Cannaceae: *Canna coccinea* Mill. (= *Canna indica*); Capparaceae: *Cleome* L. sp.; Casuarinaceae: *Casuarina* L. sp.; Chrysobalanaceae: *Licania michauxii* Prance (= *Geobalanus oblongifolius*);



**Fig. 1.** *Aleurothrixus trachoides* (Back, 1912), puparium. **A.** Dorsal habitus. **B.** Vasiform orifice.

Clusiaceae: *Calophyllum antillanum* Britton (= *Calophyllum brasiliense* var. *antillanum*), *Hypericum hypericoides* (L.) Crantz; Convolvulaceae: *Ipomoea batatas* (L.) Lam.; *Ipomoea* L. sp., *Merremia* Dennst. ex Endl. sp.; Dioscoreaceae: *Dioscorea* L. sp.; Fabaceae: *Canavalia ensiformis* (L.) DC.; Lamiaceae: *Tectona grandis* L.f.; Lauraceae: *Persea americana* Mill.; Malvaceae: *Hibiscus elatus* Sw. (= *Hibiscus tiliaceus* subsp. *tiliaceus*); Melastomataceae: *Miconia magnifolia* Gamba & Almeda; Mimosaceae: *Leucaena* Benth. sp.; Moraceae: *Ficus membranacea* C. Wright, *Ficus retusa* L.; Myrsinaceae: *Ardisia esalonioides* Schltdl. & Cham.; Myrtaceae: *Psidium guajava* L.; Phytolaccaceae: *Petiveria alliacea* L.; Polygonaceae: *Coccoloba uvifera* (L.) L.; Rosaceae: *Rosa* L. sp.; Rubiaceae: *Morinda citrifolia* L., *Psychotria nervosa* Sw., *Randia aculeata* L.; Rutaceae: *Citrus x limon* (L.) Osbeck; Sapotaceae: *Pouteria sapota* (Jacq.) H. E. Moore & Stearn; Solanaceae: *Capsicum annum* L., *Capsicum frutescens* L., *Capsicum* L. sp., *Cestrum nocturnum* L., *Datura stramonium* L., *Lycopersicon esculentum* L. (= *Solanum lycopersicum*), *Lycopersicon* L. sp. (= *Solanum* L. sp.), *Nicotiana* L. sp., *Nicotiana tabacum* L., *Solanum melongena* L., *Solanum nigrum* L., *Solanum seafortianum* Andrews, *Solanum* sp., *Solanum torvum* Sw. (= *Solanum stramonifolium* var. *stramonifolium*); Sterculiaceae: *Theobroma cacao* L.; Verbenaceae: *Citharexylum* L. sp., *Duranta erecta* L.

**Predators** (KUMAR et al. 2016; AHMED et al. 2017; AVERY et al. 2020): Insecta: Coccinellidae: *Axinoscymnus puttardriahi* Kapur & Munshi, 1965, *Delphastus pallidus* (LeConte, 1878), *Delphastus catalinae* (Horn, 1895); Aphelinidae: *Encarsia brasiliensis* Hempel, 1904, *Encarsia cubensis* Gahan, 1931, *Encar-*

*sia formosa* Gahan, 1924, *Encarsia nigricephala* Dozier, 1937, *Encarsia pergandiella* Howard, 1907, *Encarsia tabacivora* Viggiani, 1985, *Eretmocerus gracilis* Rose, 2001. Fungi: Cordycipitaceae: *Cordyceps fumosorosea* (Wize) Kepler, B. Shrestha & Spatafora.

*Aleurothrixus trachoides* was originally described from Cuba (Neotropical Region) by BACK (1912), and has spread to North America, Oceania, Asia, and Africa as a pest (EPP0 2018). It is a polyphagous pest of economic importance, predominantly feeding on plants belonging to the families Solanaceae and Convolvulaceae, causing damage by direct feeding, promoting sooty mould growth through honeydew excretion, and through transmission of the *Duranta* leaf curl virus (DLCV) (CHANDRASHEKAR et al. 2020). Therefore, this is a species for the Kenyan authorities to be alerted to and monitor for the safeguard of crops.

MARTIN (2005) recognised the following puparial characteristics for the genus *Aleurothrixus*: dorsal disc almost completely separated from wide submarginal area by an often complex, sometimes disjunct fold; cephalic setal pair absent, but metathoracic, eighth abdominal, and caudal sub-mesial setal pairs present, often long and fine; puparial submargin with seven pairs of spine-like and often minute setae in the cephalothoracic and anterior abdominal regions; vasiform orifice at least as wide as long, often transversely elliptical, sometimes elevated and usually fully occupied by the operculum; puparial margin with coarse teeth, each with a basal gland, giving the appearance of a double row of teeth; marginal teeth not or only very slightly modified at the caudal and thoracic tracheal openings.

The following species description, modified from DUBEY & SUNDARARAJ (2015), and photographs are to aid identification of the puparium of this species:

Puparium black in life, elliptical, with a fringe of white wax encircling the margin. Puparium tapered at the anterior and posterior ends and broadest at abdominal segments I & II region. Margin crenulate, with 6–8 crenulations per 0.1 mm.

Dorsum (Fig. 1A): submargin with 35–39 pairs of bands of minute tubercles. Cephalothorax elevated along the mesial plane. Longitudinal moulting suture extending to margin. Transverse moulting suture extending to outer sub-median area and anteriorly produced in the middle. Mesial length of cephalothorax equal to mesial length from base of first abdominal segment to base of vasiform orifice (VO). Mesial length of metathorax slightly shorter than mesothorax. Mesial length of abdominal segment VI twice the length of abdominal segment VII. Sub-mesial pockets clearly visible. Abdominal segments rachis-shaped; segment sutures terminating in a sub-mesial, longitudinal fold.

Vasiform orifice (Fig. 1B): subcordate to subcircular in shape; approximately 1.13 times as wide as long. Operculum subcordate in shape, occupying majority of VO. Lin-

gula spatulate, with tip visible, overlapping posterior end of VO but often hidden under dorsal surface of puparium. Apex of lingula bilobed, with pair of sub-apical setae.

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