



A NEW SPECIES OF *COHICALEYRODES* BINK-MOENEN (HOMOPTERA: ALEYRODIDAE) FROM PAKISTAN

Muhammad Tayyib¹, Muhammad Mukhtar², Muhammad Jawwad Yousuf³ and Shazia⁴

¹Department of Entomology, University of Agriculture, Faisalabad, Pakistan.

²Directorate of Malaria control, Islamabad, Pakistan.

³Entomological Section, Ayub Agricultural Research Institute Faisalabad, Pakistan.

⁴Directorate of Graduate studies, University of Agriculture, Faisalabad, Pakistan.

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*Corresponding Author:

Muhammad Tayyib

E-mail: muhammadyayyib81@yahoo.com

ABSTRACT

The present research was conducted to collect and identify genus *Cohicaleyrodes* from Punjab, a province of Pakistan. The specimens of this species were collected from 28.30° N to 32.30° N latitude, 70.25° E to 74.31° E and 150 to 225 meter in altitude. It is a very broad host range for this genus. Two species viz., *Cohicaleyrodes setosus* sp.nov. and *Cohicaleyrodes caerulescens* were identified from pupal cases mounted on slides. These species were collected from Bahawalpur, Faisalabad, Multan, Rahim Yar Khan and Sialkot. A taxonomic key for the identification of species of this genus is also given.

Keywords: Taxonomy, *Cohicaleyrodes*, *Setosus*, Pakistan, Punjab, Whitefly

INTRODUCTION

Whiteflies (Homoptera: Aleyrodidae) are economically very important insect pests. These are very small in size and attack crops, ornamentals and weed plants. Whiteflies mostly damage our crops directly by sucking cell sap and acting as vectors of many plant Viruses. They excrete large amounts of honeydew and throw it on different parts of plants. The sooty mould grows on it and interferes with the process of photosynthesis.

Genus *Cohicaleyrodes* belongs to the family Aleyrodidae and order Homoptera. The members of this family are commonly known as whiteflies. Whiteflies are minute insects, mostly their size varying between 0.5mm to 2.0mm. The identification of whiteflies is based on pupal cases.

Genus *Cohicaleyrodes* was identified by Bink-Moenen in 1983 with *Cohicaleyrodes crossopterygis* as type specimen. Martin and Mound (2007) published a check list of 17 valid species under this genus. Later on, Dubey & Ko (2010) shifted three species viz., *Aleurotrachelus caerulescens* (Singh), *Aleurotrachelus rubi* (Takahashi) and *Aleurotrachelus taiwanus* (Takahashi) to this genus. Two species *Aleurotrachelus alpinus* (Takahashi) and *Aleurotrachelus elatostemae* (Takahashi) were also shifted to this genus. Now this genus has 20 valid species.

Selvakumaran & David (1996) published 3 new species from the cardamom ecosystem,

South India, with *Cohicaleyrodes mappiae* as new species. Phillips & Jesudasan (2006) published a taxonomic checklist of whiteflies and identified *Cohicaleyrodes padminiae* as new species under this genus. Tayyib *et al.* (2014) published a list of 70 whitefly species, of which two species belonged to *Aleurotrachelus*, but later on these were shifted to genus *Cohicaleyrodes*.

In Pakistan only one species *Aleurotrachelus caerulescens* was identified by Qureshi (1978), but later on it was shifted to the genus *Cohicaleyrodes* by Dubey & Ko (2010).

MATERIALS AND METHODS

The pupal cases on the leaves of different types of vegetation were collected in the years 2013-2015 from 20 localities of the Punjab Province, viz., Bahawalpur, Bhukkar, Chakwal, Dera Ghazi Khan, Faisalabad, Gujrat, Islamabad, Jhelum, Kallar Kahar, Lahore, Lodhran, Multan, Muree, Okara, Rahim Yar Khan, Rawalpindi, Sahiwal, Sargodha, Sialkot and Vehari. The leaves having Pupal cases on them were detached and brought to the laboratory in paper envelopes after writing the name of locality, host plant and date of collection on them. The pupal cases were removed from the leaves with a fine

needle and preserved in 75 per cent alcohol in vials.

For identification of these specimens, the permanent slides were prepared according to Martin (1987) with little modifications, as given below.

1. The pupal cases were punctured from the ventral surface with a minuten pin and gently heated to the boiling point in 5-10 per cent KOH in a watch glass for 5-10 minutes to remove their inner body contents.
2. Then they were treated with glacial acetic acid to neutralize the alkali.
3. The pupal cases were thereafter treated with chloral phenol and heated for a few minutes to remove the wax coating present on them.
4. After this, the specimens were treated with 95 and 100 per cent alcohol each for 5-10 minutes to remove the excessive stain.
5. Finally, the pupal cases were then mounted in Hoyer's medium on microscopic slides, which were dried at room temperature for 24 hours.

Key to the species of *Cohicaleyrodes* in Punjab

1. Margin with a double row of teeth; submarginal area not separated from dorsal disk by a fold or suture; dorsum covered with small pores, the latter arranged in three longitudinal rows on abdomen.*caerulescens* Singh
- Margin with a single row of teeth; submarginal area separated from dorsum by a suture; dorsum not covered with pores*setosus* sp. nov.

Cohicaleyrodes caerulescens Singh

Aleurotrachelus caerulescens Singh, 1931. Mem. Deptt. Agric. Indai, Ent. Ser., 12(1): 59-60.

Specimens of this species are similar to the description of Singh (1931), David and Subramaniam (1976) and Qureshi (1978) except the number of marginal teeth which are 13-15 in 0.1mm.

Material examined:

2 mounted pupal cases, on Acacia (*Acacia nilotica*), Sialkot, 20-12-2014, M.Tayyib; 1 mounted pupal case, on Acacia (*Acacia nilotica*), Faisalabad, 1-11-2013, M.Tayyib.

Cohicaleyrodes setosus sp. nov.

Pupal case: Medium sized, broadly subelliptical, pale yellow, broadest at metathorax, 0.75-0.80 mm long and 0.57-0.65 mm wide.

Margin: Strongly dentate, i.e., long, narrow and with pointed tips, with 13-14 teeth in 0.1mm. Anterior and posterior pairs of marginal setae 20 µm and 22 µm respectively. Thoracic and caudal tracheal margins not differentiated.

Submargin: Well-defined by a line. Submarginal area with 12 pairs of setae. Caudal setae originating from much inner side of posterior border and reaching only up to the latter, measuring 24µm.

Dorsal surface: Two pairs of submedian setae, i.e., cephalic

pair (6µm) and 8th abdominal pair (10µm) present just anterior to margin of orifice, while the 1st abdominal pair is absent. Transverse moulting suture abruptly bends down, then curving up and thereafter bending down to reach the longitudinal subdorsal fold. The latter with its lower end reaching the 2nd abdominal suture. Longitudinal moulting suture reaching the margin. Abdominal segments 3-5 forming a rhachis. 7th abdominal segment slightly medially shorter than the 6th one. A broad transverse brown band just above the transverse moulting suture. From this band two oblique, narrow, brown bands run anteriorly, while two such bands run posteriorly with their ends slightly turned up.

Vasiform orifice: Cordate, with its posterior border slightly notched, 40µm long and 34µm wide; operculum nearly trapezoidal, filling more than half the orifice and concealing the lingula, 18µm long and 20µm wide; caudal furrow narrow, straight, 1.5 times longer than orifice.

Ventral surface: Thoracic and caudal tracheal folds absent. Legs and antenna not clearly visible. Ventral pair of abdominal setae 6µm. Posterior abdominal spiracles present. Material examined:

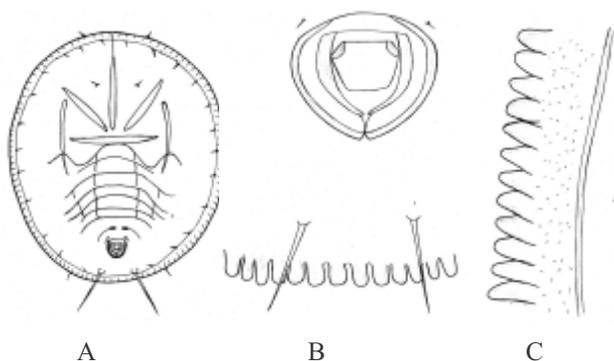
Holotype: One mounted pupal case, on Rose (*Rosa hybrid*), Faisalabad, 1-11-2015, M.Tayyib.

Paratypes: 13 mounted pupal cases, on Citrus (*Citrus sp*), Multan, 1-3-2015, M.Tayyib; 10 mounted pupal cases, on Jaman (*Syzygium cumini*), Bahawalpur, 11-5-2014, M.Tayyib; 8 mounted pupal cases, on Jaman (*Syzygium cumini*), Rahim Yar Khan, 4-1-2014, M.Tayyib.

Distinguished characters: This resembles *A.gonensis*, but can easily be separated in having a single row of marginal teeth, a submarginal line, 12 pairs of setae in submarginal area and the characteristic shape of transverse moulting suture. The new name has been formed by using the ending *-us* to the root of the latin word *setosus* (full of setae), meaning that it has a row of setae in the submarginal area.



- A. Transverse moulting suture
B. Vasiform
C. Margin & Sub margin



***Cohicaleyrodes setosus* sp. nov.:**

- A. Pupal case
- B. Vasiform orifice
- C. Margin.

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