A new genus and three new species of whiteflies (Aleyrodidae: Homoptera) from the cardamom ecosystem, South India

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ABSTRACT

A new genus and species of whitefly *Sphericaleyrodes bambusae* from *Bambusa* sp., and two new species, namely, *Aleuromarginatus erythrinae* from *Erythrina indica* and *Cohicaleyrodes mappiae* from *Mappia* sp. collected from the cardamom ecosystem in South India are described.

Key words : Aleyrodidae, *Sphericaleyrodes bambusae, Aleuromarginatus erythrinae, Cohicaleyrodes mappiae.*

Surveys were carried out for recording the aleyrodid fauna of the cardamom ecosystem mainly from Western Ghats in South India including Kerala, Karnataka and Tamil Nadu during 1989-1993. During the course of the survey three new species of whiteflies were collected, of which one belonged to a new genus and these are described here.

Genus *Sphericaleyrodes* gen. *et* sp. nov.

Type species : *Sphericaleyrodes bambusae* sp. nov.

Pupal case black, spherical, margin toothed, thoracic and caudal tracheal pores with distinct comb or tooth, submargin entirely separated from dorsal disc by distinct furrow; transverse moulting suture reaching submargin; paired setae on meso- and metathoracic regions; subdorsum granulated with characteristic pattern; vasiform orifice elevated, round; operculum similarly shaped; lingula concealed.

Although similar to *Crescentaleyrodes* David and Jesudasan (1987) in having the submargin differentiated from the dorsal disc, differs in lacking crescent shaped pores. It differs from *Rositaleyrodes* Meganathan and David (1993) in lacking the tracheal comb leading to a pouch-like structure.

1. *Sphericaleyrodes bambusae* sp. nov. (Fig.1)

Pupal case : Black with a thick fringe of wax around margin, sphere shaped, 1.89-2.04 mm long and 1.56-1.74 mm

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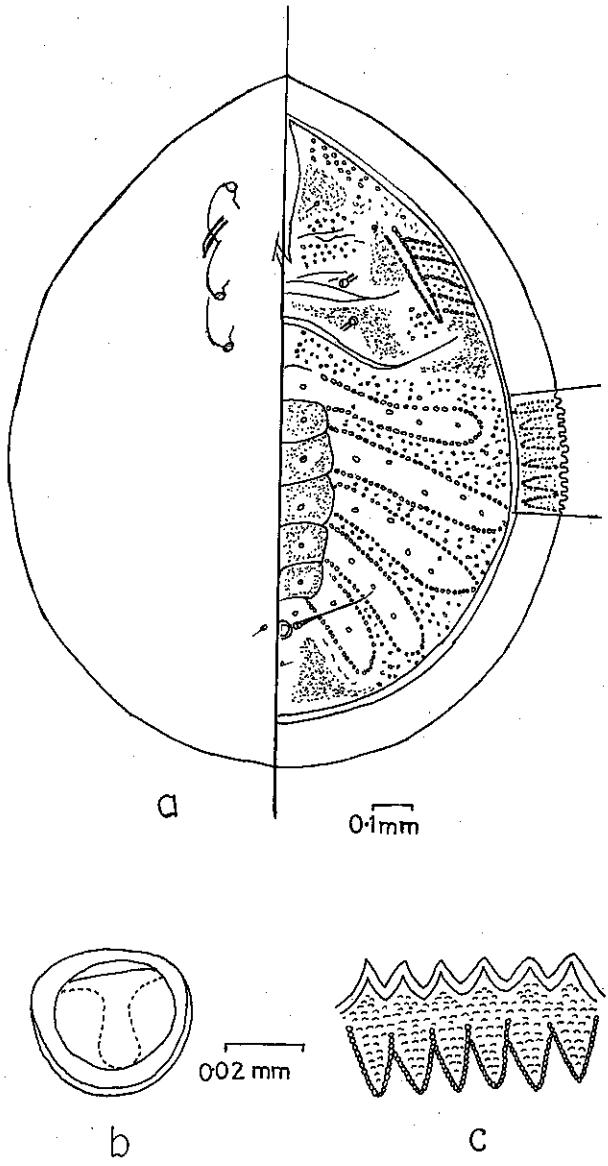

Fig. 1. *Sphericaleyrodes bambusae* sp. nov.
a. Pupal case b. Vasiform orifice c. Margin

wide, found on both upper and lower surfaces of leaves

Margin : Dentate, with distinct tooth, eight dentations in 0.1 mm; thoracic and caudal tracheal combs with 6 teeth; anterior and posterior marginal setae absent.

Dorsal surface : Two pairs of dorsal setae - cephalic setae 80 μm long, eighth abdominal setae hair like, 130 μm long, setae on first abdominal segment and caudal region absent; submargin 135 μm wide, separated from dorsal disc by complete furrow; longitudinal moulting

suture reaches margin whereas transverse moulting suture reaches subdorsum and bends anteriorly; meso- and metathoracic setae present; abdominal segments distinct; prominent pores sparsely distributed over the entire case with distinct pattern; vasiform orifice elevated, sphere shaped (50 x 50 µm); operculum similarly shaped filling entire orifice; lingula concealed.

Ventral surface : Ventral abdominal setae 15 µm long, 75 µm apart; thoracic and caudal tracheal folds invisible.

Host : *Bambusa* sp. (Poaceae)

Holotype : 1 pupal case on slide, on *Bambusa* sp., Kerala (Vandiperiyar), 15. v. 1990, S.S. Kumaran. Holotype with BVD.

Paratypes : 10 pupal cases on slides, bearing the same details as of holotype. Of these one has been deposited in the collections of the Division of Entomology, Indian Agricultural Research Institute, New Delhi; one with the Natural History Museum, London; one with United States Department of Agriculture, Maryland, USA.

2. *Aleuromarginatus erythrinae* sp. nov. (Fig. 2)

Pupal case : White, oval with waxy secretion, 0.970-1.150 mm long and 0.580-0.790 mm wide, found on the lower surface of leaves.

Margin : Irregularly crenate, anterior and posterior marginal setae 30 and 40 µm long, respectively. Thoracic tracheal pore regions without comb or tooth but caudal tracheal pore with three distinct teeth.

Dorsal surface : Paired cephalic setae and first abdominal setae 10 µm long each, eighth abdominal setae cephalad of vasiform orifice, 35 µm long and caudal setae on either side of caudal pore, 35 µm long; subdorsum with 10 pairs of hook-shaped setae-three pairs on cephalic region, one pair each on meso- and metathoracic regions, one pair each on abdominal segments 4-8, 10 µm long each. Longitudinal moulting suture reaches margin, transverse moulting suture reaches subdorsum and bends anteriorly. Seventh abdominal segment shorter than sixth. Vasiform orifice cordate, 40 µm long and 32.5 µm wide, lateral walls ridged; operculum broadly trapezoidal, filling half orifice; lingula exposed.

Ventral surface : Ventral abdominal setae 12.5 µm long, 40 µm apart. Antenna long, slender, reaching middle of mesothoracic leg, caudal furrow indicated.

Host: *Erythrina indica* Lank. (Leguminosae)

Holotype : One pupal case on slide, on *Erythrina indica,* Tamil Nadu (Thadiyankudisai), 09. ix. 1990, S.S. Kumaran. Holotype with BVD.

Paratypes : 4 pupal cases on slides, on *E. indica,* Tamil Nadu (Thadiyankudisai), 09.ix.1990, S.S. Kumaran. Of these one has been deposited in the collections of the Division of Entomology, Indian Agricultural Research Institute, New Delhi; one with the Natural History Museum, London; one with United States Department of Agriculture, Maryland, USA.

This species differs from the known species of *Aleuromarginatus* in its irregularly crenate margin, number of subdorsal hooked setae and caudal comb.

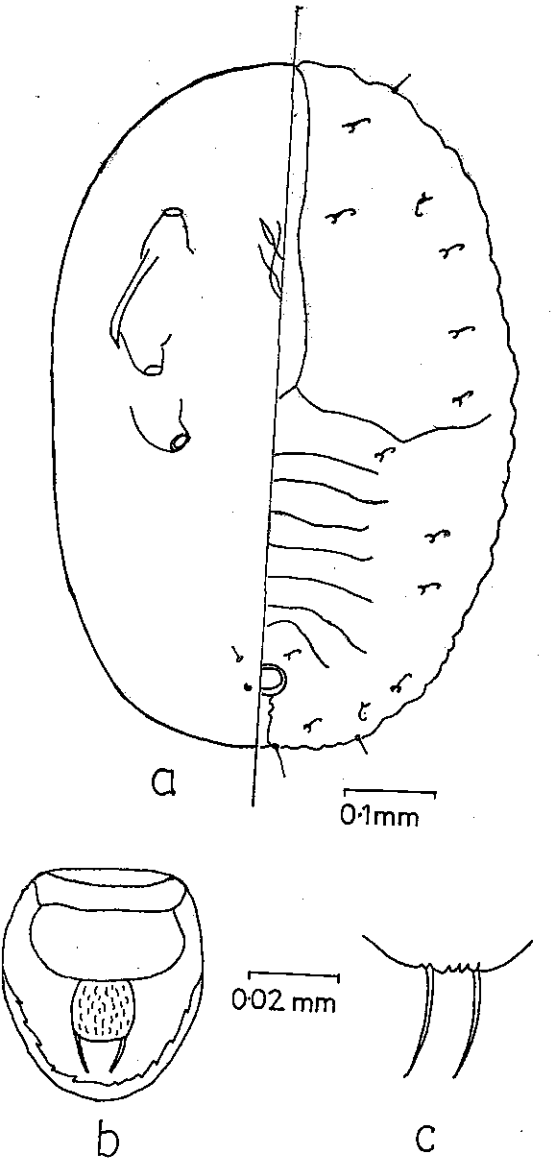

Fig. 2. *Aleuromarginatus erythrinae* sp. nov.
a. Pupal case b. Vasiform orifice c. Caudal tracheal pore

3. *Cohicaleyrodes mappiae* sp. nov. (Fig. 3)

Pupal case : Pale brown, round, without any wax secretion, 0.70-0.83 mm long and 0.59-0.72 mm wide; found singly on the lower surface of leaves.

Margin : Dentate, with a single row of teeth, 9-10 dentations in 0.1 mm; paired anterior and posterior marginal setae 12.5 μm long; thoracic and caudal tracheal pores, combs and folds absent.

Dorsal surface : Pair of cephalic setae (broken) and pair of eigth abdominal

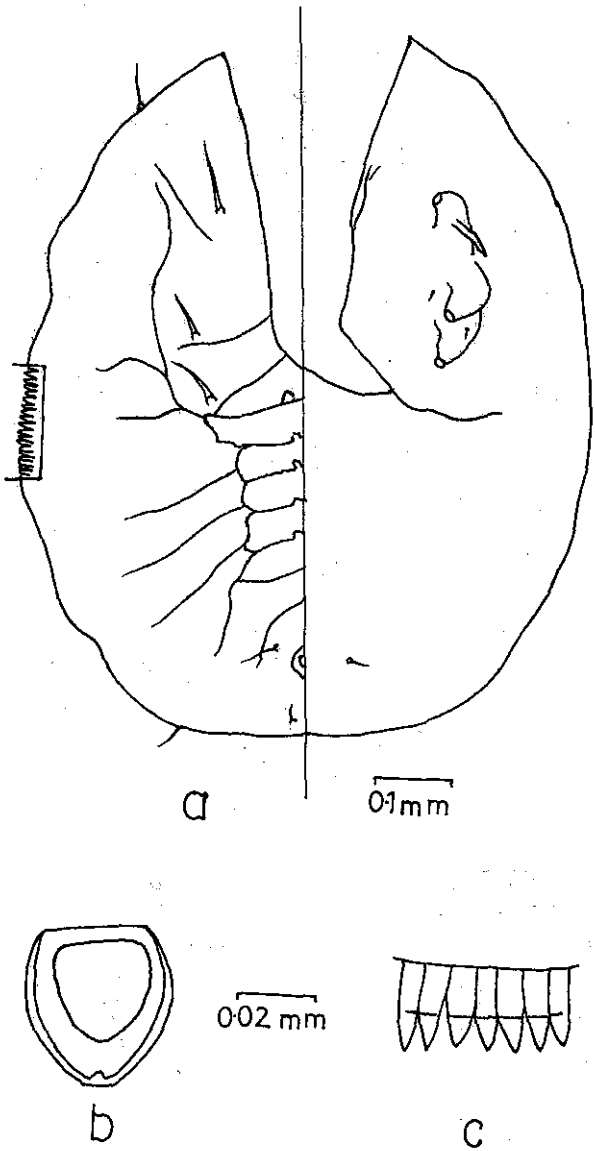

Fig. 3. *Cohicaleyrodes mappiae* sp. nov.
a. Pupal case b. Vasiform orifice c. Margin

setae 45 μm long; setae on abdominal segment 1 wanting; submarginal caudal setae 10 μm long; lateral longitudinal fold runs from cephalic region to metathoracic region; suture demarcating cephalic and prothoracic regions evident; sutures at meso- and prothoracic regions evident; sutures at meso- and metathoracic regions extend up to subdorsum. Abdominal segments with median rachis; median turbercles distinct on abdominal segments 1-5; dorsum without pores and porettes. Vasiform orifice elevated, cordate as long as wide

(50 x 50 µm), caudal end notched, operculum similarly shaped as long as wide (25 x 25 µm), lingula concealed.

Ventral surface : Ventral abdominal setae 12.5 µm long, 75 µm apart; legs and antennae well marked.

Host : *Mappia* sp. (Icacinaceae)

Holotype : 1 pupal case on slide, on *Mappia* sp. Tamil Nadu (Thadiyankudisai), 13.ix.1989, S.S. Kumaran. Holotype with BVD.

Paratypes : 2 pupal cases on slide, on *Mappia* sp., Tamil Nadu (Thadiyankudisai), 13.ix.1989, S.S. Kumaran. Of these one has been deposited in the collections of the Division of Entomology, Indian Agricultural Research Institute, New Delhi and one with the Natural History Museum, London.

This species differs from all the known species of *Cohicaleyrodes* in having a distinct rachis and median tubercles on the abdominal segments and in lacking pores and porettes dorsally.

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