

REICHENBACHIA

Staatliches Museum für Tierkunde Dresden

Band 29

Ausgegeben: 1. Juni 1992

Nr. 4

On the genera *Fippataleyrodes* n. gen. and *Taiwanaleyrodes* TAKAHASHI from India

(Insecta, Homoptera, Sternorrhyncha: Aleyrodidae)

With 3 Figures

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Abstract. *Fippataleyrodes* n. gen. (from India) and two new species of *Fippataleyrodes* viz., *F. indica* n. sp. (from Tamil Nadu: Cumbum) and *F. litseae* n. sp. (from Maharashtra: Mahabaleshwar) are described and illustrated. *Fippataleyrodes* n. gen. is close to *Dialeurolonga* DOZIER as the vasiform orifice is distinctly longer than wide but differs by the presence of a row of submarginal setae and no indication of thoracic tracheal fold and pore. It is also close to *Singhiella* SAMPSON in having no indication of thoracic tracheal fold and pore but differs by having cordate-shaped vasiform orifice, row of submarginal setae and by the absence of submarginal spines and circular raised pores on dorsum. Further a new species of the genus *Taiwanaleyrodes* TAKAHASHI viz., *T. fletcheri* n. sp. (from Tamil Nadu: Munchirai and Kerala: Triponithura) is described and illustrated. *T. fletcheri* n. sp. is quite distinct from *T. indica* (SINGH) by the presence of median tubercles on abdominal segments and granules on subdorsum of abdomen. Keys to the Indian species of *Fippataleyrodes* n. gen. and *Taiwanaleyrodes* TAKAHASHI are also given.

Introduction

TAKAHASHI (1932) erected the genus *Taiwanaleyrodes* which is represented by a single species viz., *T. indica* (SINGH). We discovered a new species in this genus and a new genus *Fippataleyrodes* with two new species from the materials of our collection. These are described in detail by this paper.

The abbreviations used for depositories of types of new taxa are as follows:

USDA	United States Department of Agriculture, Maryland, U.S.A.
BMNH	British Museum (Natural History), London, U.K.
IARI	Indian Agricultural Research Institute, New Delhi, India.
ZSI	Zoological Survey of India, Madras, India.

Fippataleyrodes n. gen.

Type-species *Fippataleyrodes indica* n. sp., on *Ficus racemosa*, Cumbum, 10. i. 1988, Coll. S. SELVAKUMARAN.

Pupal case elliptical; white, without wax secretion; margin irregularly crenulate; submargin not separated from dorsal disc and with a row of setae; submedian area with a row of papillae; thoracic tracheal pore, furrow, and fold absent; caudal pore end, furrow and some times fold indicated; longitudinal moulting suture reaching margin and transverse moulting suture reaching subdorsum. Vasiform orifice cordate; operculum similarly shaped, filling the orifice; lingula concealed.

This new genus is close to *Dialeurolonga* DOZIER, 1928, as the vasiform orifice is distinctly longer than wide but differs by the presence of a row of submarginal setae and no indication of thoracic tracheal fold and pore. It is also close to *Singhiella* SAMPSON, 1943, in having no indication of thoracic tracheal fold and pore but differs by having cordate shaped vasiform orifice, row of submarginal setae and by the absence of submarginal spines and circular raised pores on dorsum.

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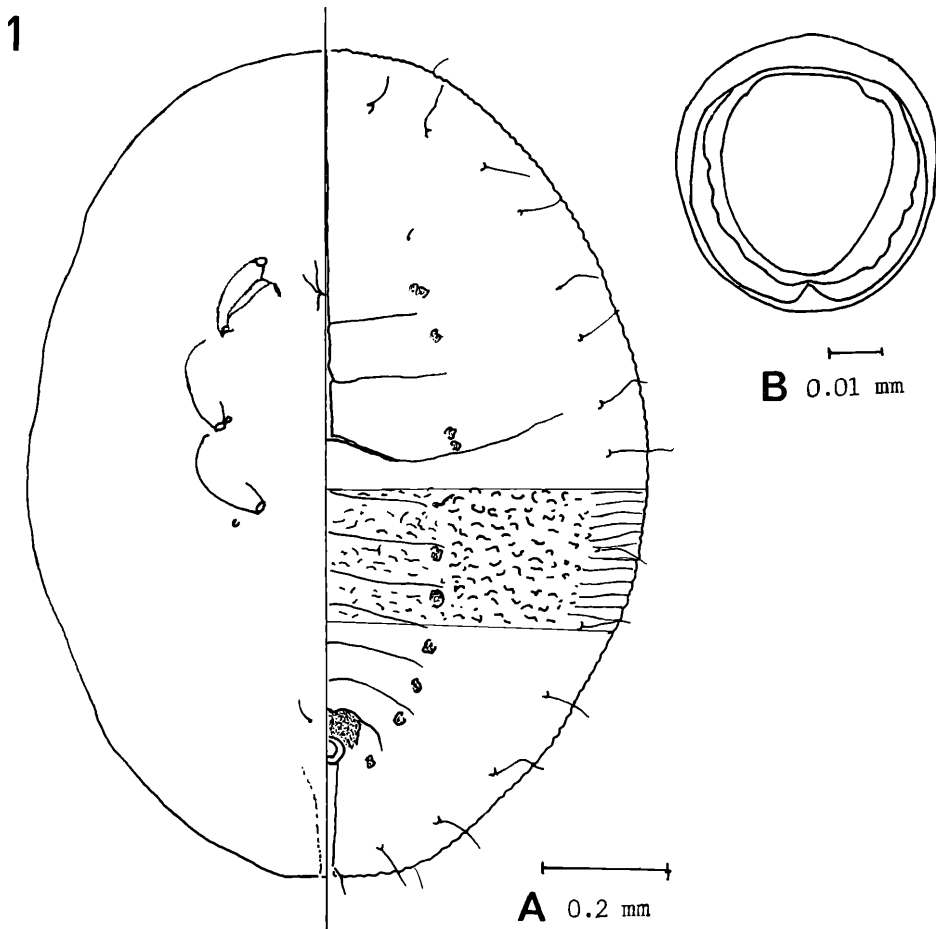


Fig. 1: *Fippataleyrodes indica* n. sp. A: pupal case - B: vasiform orifice.

Key to Indian species of *Fippataleyrodes* n. gen.

- 1 All the dorsal setae and submarginal setae capitate; seventh abdominal segment shorter than eighth; vasiform orifice 45-50 μm long and 40-42.5 μm wide. **F. litseae n. sp.**
- All the dorsal setae and submarginal setae with pointed tips; seventh and eighth abdominal segments equal in length; vasiform orifice 52.5-55 μm long and 47.5-50 μm wide.

F. indica n. sp.

***Fippataleyrodes indica* n. sp. (Fig. 1)**

Pupal case White, without wax, elliptical; 1.20-1.47 mm long and 0.86-1.06 mm wide; found singly on the under surface of leaves.

Margin: Irregularly crenulate; anterior and posterior marginal setae respectively 20 and 30 μm long. Thoracic tracheal pores indistinct while caudal tracheal pore end indicated.

Dorsal surface: Dorsum with four pairs of setae - cephalic setae 20-37.5 μm long, first abdominal setae 20-37.5 μm long, eighth abdominal setae cephalad of vasiform orifice minute 3 μm long, and submarginal caudal setae 22.5 μm long. Submargin not separated from dorsal disc, with a row of 14 pairs of

pointed setae, 115-200 μm long - 7 pairs on cephalothorax and 7 pairs on abdomen; dorsum with granule-like markings, and a row of distinct papillae laterad of thoracic and abdominal segments except first and second on the submedian area; eighth abdominal segment slightly shaded.

Vasiform orifice cordate, 52.5-55 μm long and 47.5-50 μm wide with ridges on its inner lateral and posterior side; operculum similarly shaped, 35 μm long and 30 μm wide, filling the orifice and lingula concealed. Caudal tracheal furrow 150-195 μm long and 7.5 μm wide. Thoracic tracheal furrows indistinct. Ventral surface: Ventral abdominal setae cephalad of vasiform orifice 20 μm long and 40 μm apart. Caudal tracheal fold faintly discernible while thoracic tracheal folds indistinct.

Specimens examined India: Holotype one pupal case on slide, *Ficus racemosa*, Tamil Nadu: Cumbum, 10. i. 1988, S. SELVAKUMARAN, Coll. B. V. DAVID. Paratypes: 3 pupal cases on slides, data as in holotype. (USDA, BMNH, IARI, ZSI)

Remarks : This species is distinct from *F. litseae* n. sp. in having pointed dorsal and submarginal setae.

***Fippataleyrodes litseae* n. sp. (Fig. 2)**

Pupal case White, transparent, without wax; elliptical; 1.13-1.43 mm long and 0.84-1.10 mm wide; found singly on the under surface of leaves.

Margin: Irregularly crenulate; anterior and posterior marginal setae each 25 μm long. Thoracic tracheal pores indistinct while caudal tracheal end indicated by a slight invagination.

Dorsal surface: Dorsum with four pairs of capitate setae cephalic and first abdominal setae each 20 μm long, eighth abdominal setae minute 2.5 μm long, and submarginal caudal setae 10 μm long. Dorsum with irregular granule-like markings and pores and porettes; submargin with suture-like lines and a row of 13 pairs of capitate setae 12.5-17.5 μm long distinct. A submedian row of papillae laterad of thoracic and abdominal segments except first and second and a group of densely stained papilla-like structures at the cephalic end and laterad of vasiform orifice discernible; eighth abdominal segment slightly shaded.

Vasiform orifice cordate, longer than wide, 45-50 μm long and 40-42.5 μm wide; operculum similarly shaped, 32.5-35 μm long and 27.5-30 μm wide, almost filling the orifice and obscuring the lingula. Thoracic tracheal furrows indistinct while caudal furrow indicated, 125 μm long and 5 μm wide.

Ventral surface: Paired ventral abdominal setae cephalad of vasiform orifice, 25 μm long and 30 μm apart; thoracic and caudal tracheal folds not discernible.

Specimens examined India: Holotype one pupal case on slide, *Litsea stocksii*, Maharashtra: Mahableshwar, 28. iii. 1987, B. V. DAVID, Coll. B. V. DAVID. Paratypes: 18 mounted pupal cases, data as in holotype. (USDA, BMNH, IARI, ZSI)

Remarks This species is distinct from *F. indica* n. sp. in having capitate dorsal and submarginal setae.

***Taiwanaleyrodes* TAKAHASHI**

Taiwanaleyrodes TAKAHASHI, 1932: p. 84. **Type-species** *Taiwanaleyrodes meliosmae* TAKAHASHI, by monotypy.

Pupal case oval or subelliptical; margin with a row of teeth, marginal area bent downwards, marginal narrow area of venter separated; submargin not separated from dorsal disc; dorsum generally without tubercles or granules; cephalic and first abdominal setae two-segmented; thoracic tracheal folds and pores absent, caudal tracheal fold and pore distinct. Vasiform orifice rounded or cordate, lacking teeth, notched at the caudal end; operculum nearly filling the orifice; lingula not exposed.

Key to Indian species of *Taiwanaleyrodes* TAKAHASHI

- 1 Cephalic setae 300 μm long and first abdominal setae 280 μm long; abdominal segments 1-7 with median tubercles; subdorsum with granules; vasiform orifice cordate. **T. fletcheri** n. sp.
- Cephalic setae 264 μm long and first abdominal setae 231 μm long; abdominal segments without median tubercles; subdorsum without granules; vasiform orifice subcircular. **T. indica** (SINGH)

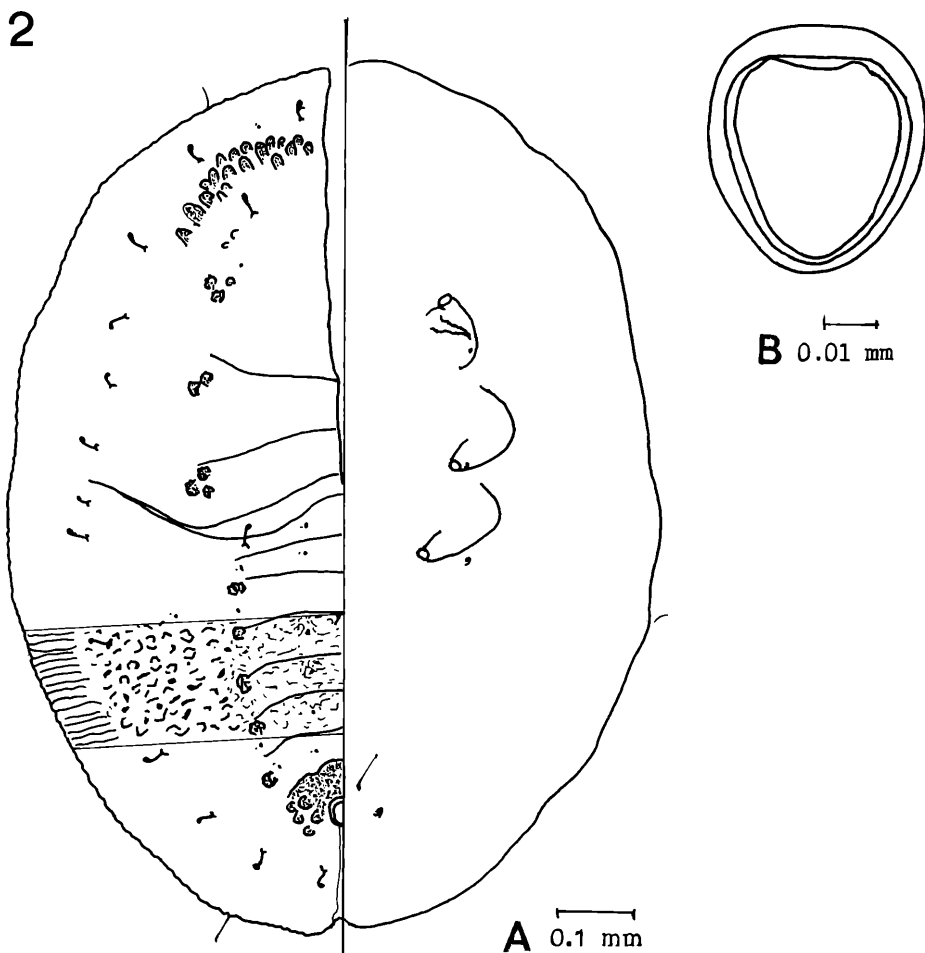


Fig. 2: *Fippataleyrodes litseae* n. sp. A: pupal case - B: vasiform orifice.

***Taiwanaleyrodes fletcheri* n. sp. (Fig.3)**

Pupal case Small; white with little wax on dorsum and margin; subelliptical, broadest at the metathoracic region; narrowing towards the caudal end; found singly and scattered, one or two per leaf on the under surface of leaves; 0.51-0.53 mm long and 0.33-0.34 mm wide.

Margin: Finely crenulate, 40 crenulations in 0.1 mm; anterior and posterior marginal setae respectively 17.5 and 15 μm long; thoracic and caudal tracheal combs or pores wanting, caudal pore distinct.

Dorsal surface: Two pairs of two-segmented setae - a pair on cephalic region, 300 μm long, and a pair on first abdominal segment, 280 μm long; a pair of eighth abdominal setae cephalad of vasiform orifice, 5 μm long; a pair of submarginal caudal setae, 87.5 μm long on either side of caudal furrow. Abdominal segments 1-7 with distinct median tubercles which extend in rows along the suture on the submedian area; subdorsum with granules only on abdominal region; minute tubercles along the pro-meso and meso-meta thoracic sutures and a group of minute tubercles on the region of rostrum present.

Vasiform orifice cordate, notched at the hind end, longer than wide, 47.5-50 μm long and 42.5-45 μm

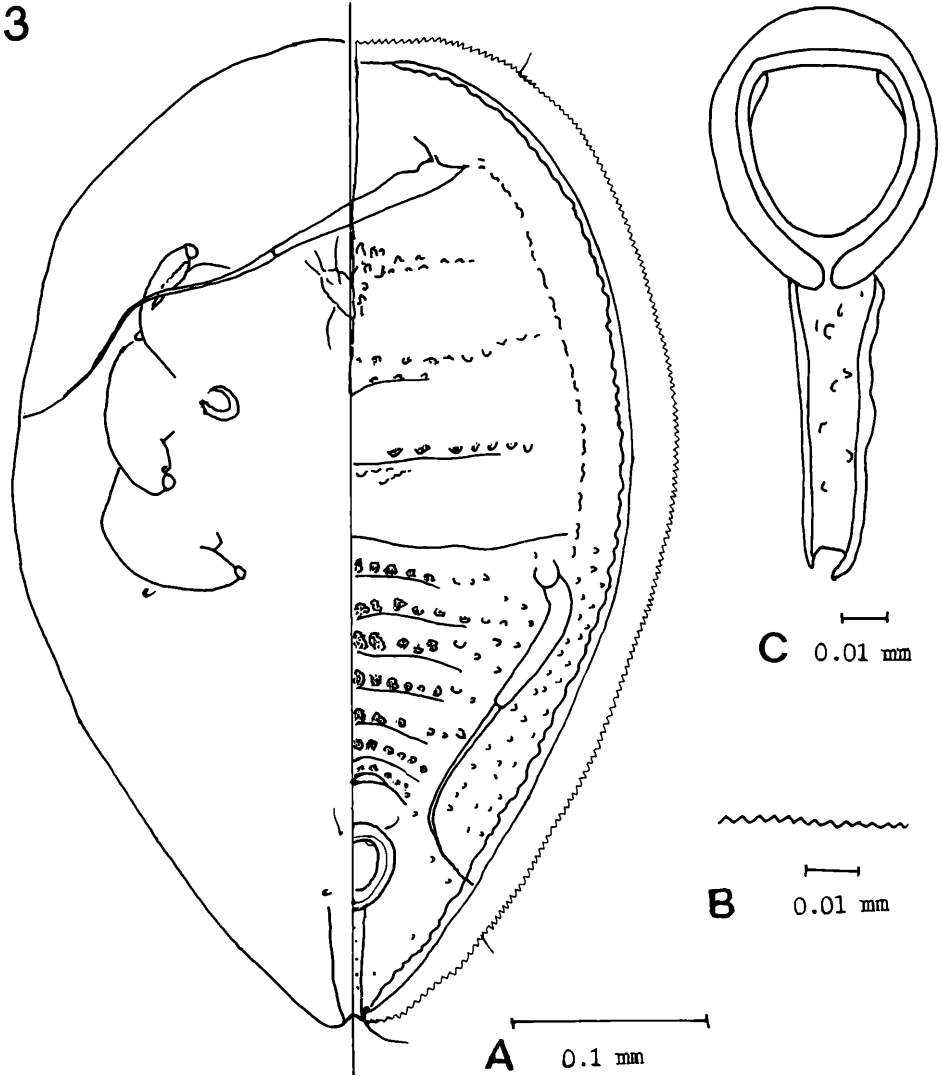


Fig. 3: *Taiwanaleyrodes fletcheri* n. sp. A: pupal case - B: margin - C: vasiform orifice.

wide; operculum as long as wide, filling the orifice. Lingula concealed; caudal furrow cylindrical with scattered markings, 47.5 μ m long and 12.5 μ m wide, thoracic tracheal furrows not discernible. Ventral surface: Paired ventral abdominal setae 17.5 μ m long and 20 μ m apart; thoracic tracheal folds not indicated while caudal tracheal fold indicated.

Specimens examined India: Holotype one pupal case on slide, *Mallotus* sp., Tamil Nadu: Munchirai, 3. viii. 1987, R. SUNDARARAJ, Coll. B. V. DAVID. Paratypes: 6 pupal cases mounted, data as in holotype; 15 mounted pupal cases, *Tectona grandis*, Kerala: Triponithura, 30. vii. 1987, R. SUNDARARAJ; 2 pupal cases mounted, *Hemidesmus indicus*, Tamil Nadu: Munchirai, 3. viii. 1987, R. SUNDARARAJ. (USDA, BMNH, IARI, ZSI)

Remarks This species is quite distinct from *T. indica* (SINGH) by the presence of median tubercles on abdominal segments and granules on subdorsum of abdomen.

Acknowledgements

The authors are grateful to Mr. S. James Fredrick, Chairman, Dr. V. R. Chandran, Additional Director and Dr. Clement Peter, Head, Department of Entomology, FIPPAT, for the facilities provided. The work forms part of Ph. D. thesis of the first author approved by the University of Madras.

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(Received on 17 VIII. 1990)

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Zeitschrift/Journal: [Reichenbachia](#)

Jahr/Year: 1992

Band/Volume: [29](#)

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Artikel/Article: [On the genera Fippataleyrodes n. gen. and Taiwanaleyrodes TAKAHASHI from India \(Insecta, Homoptera, Sternorrhyncha: Aleyrodidae\) 15-20](#)