

NOTES ON ALEURODIDAE (RHYNCHOTA) FROM INDIA. II.

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(Plate VII.)

Genus **Taiwanaleyrodes** Takahashi (1932).

Taiwanaleyrodes hexcantha, sp. nov.

(Plate VII, figs. 1-4.)

Locality.—Nagpur, Chanda.

Host.—*Bauhinia* sp.

Pupa case.—(Pl. VII, fig. 1). Colourless, thin, with two brownish patches, an anterior one, in the region of the mouth parts and the other about the middle of the anteriormost abdominal segment; convexo-flat, cake-like, with a narrow fringe of white powdery wax. Shape sub-elliptical, narrowing posteriorly, not constricted, a little indented at the posterior end. Mid-thoracic suture reaching the margin of the dorsal disc, thoracic segments faintly defined from one another, thoracic-abdominal suture almost reaching the margin of dorsal disc; abdominal segments distinct. Submarginal area narrow defined from the dorsum by irregular and unequal elevations (Pl. VII, fig. 2), without distinct markings. Dorsum with sparse granules sublaterally; cephalothorax with a pair of rounded tubercle-like markings on the bases of the first pair of legs, an indistinct pair externally to the third pair of legs and a pair of fairly long spines with rounded bases situated a little in front of the distal extremity of the first pair of legs. Abdomen with a pair of similar spines sublaterally on the first segment and with longitudinal wavy markings on the median areas of the first two segments, rarely faintly seen also on the third segment; a pair of fine setae present near the vasiform orifice, a pair of longer spines at the hind end. Thoracic tracheal folds not discernible, their terminations on the margin clearly indicated by the absence of crenulations (Pl. VII, fig. 4). Caudal fold 0.063 mm. long, having a chitinised margin, narrowing towards the hind end, fairly wide, with sparse irregular markings, the "cleft" widely concave, indicated by the absence of marginal crenulations. Margin with two pairs of usual setae, a pair anteriorly, and a pair posterolaterally, marginal teeth minute, rounded at the apex, wider than long, ventral submarginal area well defined.

Vasiform orifice 0.042 mm. by 0.033 mm., subsemicircular, with a thickened rim (Pl. VII, fig. 3), without a notch at the posterior end, without teeth. Operculum almost filling the orifice, obscuring the lingula. Length of case 0.7 mm.; breadth 0.46 mm. Adults unknown.

This species bears some resemblance to *Taiwanaleyrodes carpini*, Takahashi (1939), but differs from it in colour, details of markings, tracheal folds and details of vasiform orifice.

Collected by the author in Dec. 1937. Several specimens on slides and leaves in my collection. Holotype in the Indian Museum (No. 5837/H7), Calcutta.

Genus **Aleuromarginatus** Corbett (1935).

Aleuromarginatus indica, sp. nov.

(Plate VII, figs. 5-12.)

Locality.—Nagpur.

Host.—*Tephrosia purpurea*.

Pupa case.—(Pl. VII, fig. 5). Occurring on both upper and lower surfaces of leaves, surrounded by a white marginal fringe of fine wax filaments; light brown, with three deep brown areas, one anteriorly about the mouth parts, middle one about the anterior abdominal segments, and posteriorly round the vasiform orifice; elliptical, slightly constricted across thorax. Exhibiting considerable variation regarding colour, some specimens lacking deep brown areas. Margin with two rows of teeth (Pl. VII, fig. 6), outer long and acute, inner short and rounded, about nine in each series up to 0.1 mm. Tracheal folds and clefts absent. Caudal groove indicate anteriorly, enclosing the vasiform orifice. Both thoracic and transverse sutures reaching the margin. Submargin with radial linear sculpturing merging into honey-comb-like markings on the subdorsal area. Dorsal disc without median rachis, thoracic and abdominal sutures clearly defined and extending into the subdorsal area. Paired chitinised thickenings on thoracic and abdominal segments. Minute spines and pores scattered on dorsum as shown in the figure. Legs thick and conical, antennae tapering and long.

Vasiform orifice (Pl. VII, fig. 7) subcordate, about 0.071 by 0.075 mm. with the anterior margin somewhat concave, inner and posterior margins armed with fine setae. Operculum filling about two-third of the orifice, rounded laterally and truncate posteriorly. Lingula cylindrical, knobbed, setose with a pair of bristles at the posterior end, which is exposed and included within the orifice. Length of female case 1.2 mm., breadth 0.74 mm. Male cases much smaller.

Adult female.—Body yellow, with paired grey patches on the dorsal side of the abdomen, wings white, covered with the usual waxy powder, eyes crimson constricted in the middle, tip of the rostrum black. Length from vertex to tip of abdomen about 1.62 mm.

Antenna (Pl. VII, fig. 11) of seven segments, annulated; segment II subelliptical 0.063 mm. long with two or three spines; segment III imbricate 0.105 mm. long with a sensorium at the distal end; segment IV subpyriform 0.021 mm. long; segment V cylindrical 0.042 mm. long with a fringed sensorium at the distal end; segment VI 0.1 mm. with a sensorium near the distal end; segment VII 0.138 mm., pointed and setose at the distal end, which also bears two indistinct sensoria.

Forewing about 1.38 mm. long and 0.46 mm. broad, translucent white, without any patches. Radial sector with a single flexure, extending to the outer margin of the wing, cubitus distinct reaching the hind margin. Hindwing about 1.07 mm. by 0.40 mm., with the basal part of

the anterior margin thickly chitinised and armed with a few large spines, with the usual vein extending all along its length.

Abdomen with the usual two pairs of wax glands. Hind tibia 0.462 mm. long, proximal tarsus 0.130 mm., distal tarsus 0.092 mm. Claws short and curved, paronychium shorter and thinner, hairy at the base. Vasiform orifice (Pl. VII, fig. 9) circular, operculum defined into two lobes, postero-lateral margin heavily chitinised, smaller than the orifice and lying within it. Lingula cylindrical, setose, with a few longer bristles at the tip, which slightly extends beyond the orifice; a grey patch surrounding the orifice. Ovipositor with the ordinary parts, a submoniliform filamentous structure (Pl. VII, fig. 10) segmented at the distal end, arising from the right anterior end of the genital plates, the corresponding structure on the left appears to have fallen off; these appear to be unusual anal cerci.

Adult male.—Length about 1.33 mm., coloured like the female.

Antenna (Pl. VII, fig. 12) of seven segments, provided with sensoria like those of the female, the VI and VII segments having peculiar bright V shaped markings, the lengths of the segments being as follows. II 0.054 mm.; III 0.084 mm.; IV 0.0084 mm.; V 0.012 mm.; VI 0.189 mm.; VII 0.231 mm.

Abdomen with the four pairs of wax glands. Vasiform orifice like that of the female, proportionately smaller. Claspers 0.134 mm. long (Pl. VII, fig. 8), with a single serration and two spines on the inner margin near the distal end. Penis about two-thirds the length of the claspers, with a conical process dorsally at the tip.

This species closely resembles *Aleuromarginatus tephrosiae* Corbett (1935), from which it is differentiated by the following characters:—The longitudinal suture never reaches the fourth abdominal suture, the absence of circular markings on the submargin, the vasiform orifice is enclosed by a broad shallow, and incomplete caudal groove, operculum larger and the lingula with a pair of terminal bristles.

Breeding was noticed in September. Adults rather inactive. Fairly common. Types in the Indian Museum (Nos. 5838-5840/H7), Calcutta.

Genus **Aleurolobus** Quaintance and Baker (1914).

Aleurolobus bidentatus, sp. nov.

(Plate VII, figs. 13-17.)

Locality.—Simla.

Host.—*Jasminum* sp.

Pupa case.—On both sides of leaves, black, surrounded by a broad filamentous colourless fringe, next to which is a marginal fringe of white waxy powder; demarcation between submargin and dorsal disc indicated by a waxy powder laterally, within which the outlines of the head, thorax and abdomen are again defined in wax, the body outline connected with the submarginal line by six radial lines, in the abdominal region (Pl. VII, fig. 17).

After boiling in KOH cases brownish yellow, elliptical, flattened. Margin (Pl. VII, fig. 15) with two rows of teeth, the lower row of broad wedge shaped teeth with semicircular curvatures at their bases, the

upper row smaller and narrower, with the distal ends transversely fluted here and there, and a row of dark dots basally. Submargin with suture-like lines running inwards. A dark and a light band separates the dorsal disc from the submargin all round, except at the posterior end, where the two merge into one another. Dorsal disc distinctly segmented, with a few minute pores disposed as shown in the diagram (Pl. VII, fig. 13). Longitudinal suture reaching the margin; transverse suture extending only up to the submargin; submedially paired oval markings on cephalothorax and abdomen, the number varying in different specimens; crescentic eye spots distinct. Thoracic tracheal folds not indicated, terminating on the margin in three rounded teeth, bounded submarginally by an irregular dark area, occupying about one third of the submargin (Pl. VII, fig. 16).

Vasiform orifice 0.117 mm. by 0.084 mm., subtriangular, enclosed by the trilobed area characteristic of the genus, with a few projections and reticulations posteriorly (Pl. VII, fig. 14). Operculum similarly shaped, almost covering the orifice, with the outline of the lingula indicated below it. Caudal tracheal fold a little longer than the orifice, narrow, without any markings, but with three or four tooth-like projections directed inwards, near about its distal end, which terminates into three rounded teeth, like the thoracic folds, the outer two of these bearing minute setae marginally. Length of female case, 1.29 mm., breadth, 1.01 mm. Adults unknown.

This species bears close resemblance to *Aleurolobus rhododendri* Takahashi (1934), differing from it in the characters of the margin, as also the absence of submarginal setae. It is also somewhat like *Aleurolobus niloticus* Priesner and Hosny (1934), but differs in details of the vasiform orifice, and the caudal tracheal "cleft"

Abundant material on leaves and slides. Collected by the author in June 1935. Type in the Indian Museum (No. 5841/H7), Calcutta.

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