EMBRYOGENESIS OF TEREBRANTIAN THRIPS, FRANKLINIELLA INTONSA (THYSANOPTERA, THRIPIDAE)

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Uljanin in 1874 published brief observation on embryonic development of Terebrantia and since that time this suborder was completely neglected, while species of another suborder Tubulifera were studied quite recently (Bournier, 1966; Heming, 1979,1980; Haga, 1985). In this study the authors describe gross embryogenesis of popular flower thrips, Frankliniella intonsa (Trybom) of suborder Terebrantia.

The females of the species studied, like most of terebrantian thrips, lay eggs singly in plant tissues by means of saw-like ovipositor, and it was easily to collect eggs by Murai's (1982) method.

The freshly laid egg is kidney-like in shape, about 0.26 mm long and 0.1 mm wide. The developmental period lasts about 100 hr at temperature 25 C, and may be divided into 12 following stages.

Stage 1. (0-10 hr after oviposition) Cleavage and blastoderm formation. The cleavage center is localized near the egg center.

Stage 2. (10-14 hr) Differentiation of the embryonic and extraembryonic areas. The embryonic area is formed at the ventral egg surface near its posterior pole.

Stage 3. (14-18 hr) Formation of germ-band. The embryonic area invaginates into the yolk at the posterior pole of the egg, and germ-band formation begins.

Stage 4. (18-24 hr) Appearance of appendage anlagen of germ-band. During the germ-band elongation, near the anterior pole of the egg, gnathal appen-

dages appear as mere swellings followed by antennal ones.

Stage 5. (24-32 hr) Germ-band at its greatest length. The germ-band shows double sigmoid form, in lateral view. Appendages of germ-band begin to metamerize.

Stage 6. (32-46 hr) Pre-revolution stage. The abdomen of the embryo is flattened and flexed in U-shape. The serosal cuticle begins to form, and the anterior swelling of the egg becomes distinct.

Stage 7. (46-50 hr) Katatrepsis. Embryonic envelopes rupture at their fusing point. Head and gnathal regions move anteriorward, and the abdomen posteriorward still remains in a flexed form. The embryonic rotation was not observed during katatrepsis.

Stage 8. (50-56 hr) Post-revolution stage. The secondary dorsal organ begins to disappear,and dorsal closure proceeds.

Stage 9. (56-64 hr) Completion of dorsal closure. Dorsal closure ended. Four ommatidia begin to form in the eye area.

Stage 10. (64-72 hr) Mid-gut formation. Mouth-cone is formed by modified gnathal appendages, and antennae move to their definite position. Mid-gut is formed in result of bipolar origin.

Stage 11. (72-86 hr) Completion of 1st instar larva. The larval cuticle is secreted over the full grown embryo. Setae are formed, and hypodermal pigments deposited.

Stage 12. (86-100 hr) Hatching. The 1st instar larva hatches out through swelled part of the egg, after many its reciprocal before-behind movemets.

References

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