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The larva and puparium of *Eriozona syrphoides* (FALLÉN) (Diptera, Syrphidae)

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Taxonomy, aphidophagous syrphid, key, bionomics

Abstract. The larva and puparium of the syrphid fly *Eriozona syrphoides* (Fall.) are described, with observations on the bionomy of this species in Czechoslovakia. The key to 3rd instar aphidophagous syrphid larvae is modified to include this species.

Knowledge of the developmental stages of the Syrphidae is far from complete and the larvae of only about one third of the species occurring in Czechoslovakia are known. The following authors have contributed to the determination of larvae and puparia of Syrphidae: BRAUNS (1954), DIXON (1960), GOELDLIN (1974), HENNIG (1952) and VIMMER (1933). DUŠEK & LÁSKA (1959, 1960, 1961, 1967) characterized and keyed the known genera and groups of larvae and puparia of Syrphids. VOCKEROTH (1969) included two species of the genus *Eriozona* SCHINER in the Palaearctic fauna. Material of the 3rd instar larva and puparium of *Eriozona syrphoides* (FALLÉN, 1917) has recently become available in Czechoslovakia and these stages are now described in the present paper.

MATERIAL

During a study of the role of aphidophagous Syrphidae in established (40-year-old) spruce monocultures at Kuničky, in the western part of the Drahany Upland, seven 3rd instar larvae of *E. syrphoides* (FALL.) were obtained by knockdown. The larvae were sucking aphids of *Cinara pineae* (PANZ.), but in the laboratory they ceased feeding and entered diapause. The larvae were kept at 8 °C during diapause (November—April); they were exposed to severe frosts for a period of 14 days in January. Two imagoes (1 ♂, 1 ♀) hatched in mid-May. Two larvae died during diapause and three were killed and preserved in Pampl's fluids (EKIS & GUPTA, 1971). Data on body size and parts are mean values of 7 larvae in the initial stage of diapause.

From 1977—1979 only two imagoes *E. syrphoides* species were caught at the Kuničky site (1 ♀, June 1977; 1 ♀, June 1978) (KULA, 1979).

Eriozona syrphoides (FALLÉN, 1917)

Larva — 3rd instar

At the beginning of diapause in motionless position body length 15 mm, width 7 mm and height at middle of body 4 mm. In size resembling the biggest Syrphid larvae, e.g. *Volucella* GEOFFR. and *Myatropa* ROND.

Body flattened, with lateral margins approximately parallel, narrowing anteriorly, with truncated posterior pert tip. (Plate I, Figs. 1, 2, 3, 4)* Segmentation distinct with deep transverse wrinkles both among segments and ridges. 5th—10th segments dorsally divided by four ridges, 2nd ridge carrying 1st pair of segmental papillae with spines distinctly highest. 4th segment with papillae arranged on one plane.

Larva coloured black. Movable spurs protrusion of lateral side coloured orange on transition of ventral part of the body. Neither internal organs nor haemolymph participate in colouration.

Segmental papillae arranged regularly on 4th—10th segments each with six pairs. Papillae of 1st pair situated dorsally distinctly directed upwards, 0.54 mm high, width at base 0.62 mm; distinctly black lined (Plate II, Fig. 6). Papillae of 2nd pair situated between lateral and dorsal papillae, directed upwards with identical height and basal width (0.31 mm); coloured lining generally less distinct. Papillae of 3rd pair largest, height 1.24 mm, base width 1.09 mm, situated laterally and directed outwards; with receding lining of black colouration. Papillae of 4th—6th pairs situated on transition between lateral and ventral sides, directed laterally, orange coloured. Papillae of 4th pair identical in height and basal width (0.62 mm), papillae of 5th—6th pair half-sized.

The papillae can be characterised as high, slim, spiral with sharp, apical angle. They are topped with spines which in basal part are formed by a cylindrical spur (height 0.06 mm, width 0.04 mm), and in apical part narrowed to form the spine itself and reach 0.13 mm in length (Plate II, Fig. 7).

Posterior respiratory process 0.47 mm long, width 1.06 ± 0.059 mm and height 0.62 ± 0.036 mm. Angle between process and horizontal plane approximately 40° (Plate II, Fig. 8). Posterior spiracular plates separated by medial groove with irregular ornamentation. Posterior spiracles flattened slightly widened in middle, situated on carinae which are relatively low and lined by distinct depression on the periphery. Spiracles (I and II) contained approximately right angle, spiracles II and III the angle of about 45° (Plate II, Figs. 9, 10). Interior thoracic horns indistinct.

Puparium

Drop-like in shape, concave ventrally side convex dorsally lengthwise. From dorsal view puparium appears egg-shaped.

Puparium black like larva and with pale orange-coloured peripheral stripe. Ventral part of puparium paler. Imago not perceptible in puparium even closely before hatching.

Surface of puparium with spinose segmental papillae, the spines directed backwards and arranged as in larva. Segmentation distinct (Plate I, Fig. 5).

Morphological features and present knowledge of its bionomy class this species among the aphidophagous syrphids. The 3rd instar larva of *Eriozona syrphoides* (FALL.) can therefore lie inserted in the key to Central European aphidophagous Syrphid larvae by DUŠEK & LÁSKA (1967).

Th e original key should be modified as follows:

7 — Lateral segmental papillae conspicuously developed; on the last segment unusually long, slender, sickly papillae ..... *Dasysyrphus*

* Plates I and II will be found at the end of this issue,

— Lateral segmental papillae mostly conspicuously developed; without unusually developed long papillae on the last segment 8

8 — Larvae with more or less conspicuously tall segmental papillae with distinct spines .. 8a

— Larvae without conspicuously developed segmental papillae, at least on dorsal side; when lateral papillae more conspicuously developed larvae conspicuously flat 9

8a — Small larvae (mature larvae maximum 7 mm long) with conspicuously developed segmental papillae ..... *Paragus*

— Big larvae (mature larvae 15 mm long), epidermis with round, flat and dark-coloured protuberances ..... *Eriozona*

9 — Spiracles short, mostly on common often dark-coloured plate, posterior respiratory process distinctly shorter than wide 11

— Spiracles longer, mostly on distinct carina, from dorsal view reaching beyond the periphery of spiracular plate 14

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Личинка Eriozona syrphoides (Fallén) (Diptera, Syrphidae)

Таксономия, афидофагные сирфиды, пупарий, биономия

Резюме. Описание личинки и пупария *Eriozona syrphoides* (Fall.) (*Diptera, Syrphidae*) из Чехословакии. Личинка включена в определитель афидофагных личинок третьего возраста. Приведены данные о биономии вида.

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