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The Eggs of the Pupal Parasites of Musca domestica L.

by

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ABSTRACT

The eggs of the following pupal parasites of the housefly, Museidifurax raptor Gir. and Sanders, Nasonia vitripennis (Walker) Spalangia cameroni Perkins, S. endius Walker and S. nigroaenea Curtis are described and figured and their distinguishing characteristics described.

Among the parasites that attack houseflies, there is a group of pupal parasites that belong to the Hymenopterous family Pteromalidae. They occur in many parts of the world and are all external parasites, whose eggs are deposited on the paralyzed housefly puparia. Their larvae devour partially or completely the paralyzed host, and their adults emerge from the fly puparium. Some, (Nasonia vitripennis Walker) are gregarious in habit; some, (Spalangia cameroni Perkins) are solitary; and some, (Muscidifurax raptor Girault and Sanders) may be either gregarious or solitary. While their efficiency in controlling houseflies is often questionable, most of these parasites are easily collected and frequently encountered in Israel. Collection is facilitated by gathering housefly puparia and keeping them under moist conditions until emergence ensues. It is also possible to determine whether or not the flies are parasites by dissecting the collected puparia and recording the presence of parasite eggs, larvae or pupae therein.

Recently, after comparing the eggs of the different parasite species occurring on houseflies, the author was able to recognize distinct differences between the shape, size and ornation of their eggs.

The purpose of the present paper is to describe the different eggs, facilitate their recognition and avoid mistakes of the past (Pinkus 1913).

The following housefly parasites were collected in Israel (G.S.Olton, personal communicate): Muscidifurax raptor, Spalangia cameroni. S. endius Walker and S. nigroaenea. Another well known parasite, Nasonia vitripenhis, though much talked about and used as an experimental laboratory, animal, was not found in Israel.

Description of the Eggs.

All measurements were taken from one or few eggs only. Width was measured at the widest part.

1. Spalangia. The eggs of all three Spalangia species have smooth chorions, each being divisible into three regions - an anterior one which bears the micropyle (Figs. 1-5 m), a middle one in which the ooplasm is located and a posterior one. This division becomes more accentuated with egg maturity and consequently is better visible in the deposited, rather than in the ovarial egg.

S. cameroni (Fig. 1). The egg measures 0.5 x 0.2 mm. and is widest at 2/3 length. The anterior end has a small projection which is more prominent in the deposited egg, but is never abrupt or bottle-neck shaped; the posterior end is round. Both ends are translucent, whereas the middle part is opaque white. The egg has a distinct taper from the widest spot to both ends.

S. endius (Fig. 2). The egg measures 0.54 x 0.13 mm. and has a middle part of nearly uniform width. It starts to taper anteriorly at about 1/3 of its length and attains the narrowest region in the anterior-most 1/6 being bottle-neck shaped.

S. nigroaenea (Fig. 3). The eggs measure 0.65 x 0.16 mm. and are the largest of all discussed parasites. They are banana-shaped, tapering at both sides. The anterior taper is more pronounced than that of S. cameroni, but does not end in as narrow and well-defined a region as that of S. endius.

2. Muscidifurax raptor (Fig. 4). The eggs measure 0.4 x 0.13 mm. Their smaller size is probably associated with the smaller size of the species and its gregarious habit. They are covered with small tubercles which immediately distinguish them from the eggs of other genera.

3. Nasonia vitripennis (Fig. 5). The eggs measure 0.24 x 0.61 mm. Their distinct neck at the anterior is more pronounced in the ovarian, rather than in the deposited egg. They are widest at the middle, tapering both anteriorly and posteriorly.

Reference

Pinkus, H. 1913. The life history and habits of Spalangia muscidarum Richardson, a parasite of the stable fly. Psyche 20: 148-158.

Fig. 1. Spalangia cameroni .

Fig. 2. S. endius.

Fig. 3. S. nigroaenea.

Fig. 4. Muscidifurax raptor .

Fig. 5. Nasonia vitripennis.

M = micropyle