

## Female Syrphid flies without ovarium

by

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For some years past Miss Dr. J. M. VAN BRINK and Professor J. W. BOYES have been cooperating in a study of the chromosomes of Syrphid flies. For that purpose either the male testes or the female ovaries of the freshly killed flies are removed. After that the mounted flies were sent to the author for identification.

In 1963 Miss VAN BRINK sent me a female fly in which no ovarium could be found. This fly was the melanistic form of *Scaeva pyrastris* (L.), described as *Scaeva unicolor* by CURTIS (1834). Already in life the abdomen of *unicolor* is entirely black instead of being provided with six yellow lunules as in *pyrastris*. Ab. *unicolor* Curt. has repeatedly been caught but always in the female sex only; up till now it was considered to be a black aberration of *pyrastris*, only occurring in the female sex.

The coincidence of a female fly without ovarium on the one hand, and the relative rarity of *unicolor* on the other, raised the surmise that there might be a relation between the two phenomena (VAN DOESBURG, 1964).

Since then several female Syrphid flies have been caught in which no ovaries could be found:

a. 2 ♀♀ *Syrphus lapponicus* (Zett.), Cayuse, B. C., Canada, Aug. 14, J. W. BOYES. In both specimens the abdomen is black with the exception of two lunules on the second segment and the hind margin of the fourth segment. The lunules of the second segment are clear but small in one specimen, in the other one they are partly darkened. The length of both specimens is nearly 10 mm. A female in my collection (identified and presented by Dr. FLUKE: Cameron Pass, Colo., U.S.A., 26.VII.1932) is similar to the first specimen recorded above, but has also weakly visible lunules on the fourth segment, its length is only 9 mm. The normal length of *lapponicus* is 12 mm (SACK).

b. 2 ♀♀ *Syrphus umbellatarum* (F.), Stary Smokovec, Tatra Mt., Czechoslovakia, I.VIII.1965, J. W. BOYES. In one specimen the yellow markings are completely absent, the yellow hind margin of the fourth segment hardly visible, and the abdomen is very narrow with strictly parallel sides. Length 8 mm. In the other specimen the abdomen is normal with convex sides, but the yellow markings are a little narrower than normal and darkened by black in places. Length 9 mm. The length of *umbellatarum* is normally 10 mm according to SACK.

c. 2 ♀♀ *Scaeva pyrastris* (L.), Col de Bretolet (Valais), Suisse, 1—4.IX.1965, W. J. OUWENEEL. One of these females is a typical "*unicolor*" its abdomen being totally black with only the hind margin of the fourth and fifth segments narrowly yellow. Length 12 mm. The second female has indistinct, narrow, reddish-yellow lunules which moreover are ill-defined. Its length is 13 mm. The length of normal *pyrastris* females is 14—15 mm. In the author's collection there are 10 specimens of *unicolor* all of which are smaller than normal *pyrastris* females (VAN DOESBURG 1945).

d. 25 ♀♀ *Syrphus annulipes* (Zett.), Umea, Sweden, (several localities),

6—30.VII.1967, J. W. BOYES. Besides normal females which are in possession of an ovarium, nearly fifty females have been caught in which no ovarium could be found. The 25 specimens recorded above are all smaller than normal and their yellow abdominal lunules are obviously narrower. The length of these 25 females varies from 8 to 13 mm, in most, however, the length is 10 mm or less! The normal length is 12—14 mm.

This large number of abnormal females reminds us of an article by KESSEL (1926). On the University Farm at Davis, California, he collected by sweeping a large number of *Scaeva pyrastris*: 137 ♂♂ and 140 ♀♀. He found all the males to be normally bicolored. Among the 140 females there were 42 specimens of *unicolor* Curt., together with a few females in which the yellow markings had partially faded away. It is a pity that nothing was said about the size of these melanic females.

On the score of the observations by Dr VAN BRINK and Professor BOYES it may be concluded firstly that female Syrphids without ovarium occur much more frequently than was realized before, and secondly that there is a correlation between the absence of the ovarium and either the shape, the length or the markings of the abdomen. It may be noted here that when the abdomen is smaller than normal the whole insect is proportionally smaller and not deformed.

The cause of the absence of the ovaries is unknown. Undoubtly it existed already during the pre-adult stages, for an insect terminates its growth with its pupation.

LUNDBECK (1916) recorded many cases of Syrphidae attacked by parasitic Hymenoptera. At the end of that enumeration he gave as his own observation "that pupae containing *Bassus* are generally darker and a little smaller than normal pupae".

Perhaps we have to seek the cause of the discussed melanum and absence of the ovaries in a non-fatal parasitic attack during an earlier stage of the life of the flies.

The author is indebted to Dr. VAN BRINK and Professor BOYES for their cooperation and for the generous donation of the specimens treated above, which are now preserved in his collection.

#### Literature cited

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 DOESBURG, P. H. VAN, 1945, *Entom. Ber., Amst.* 11: 287.  
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Baarn, Cantonlaan 1.

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Afdeling Noord-Holland en Utrecht. In het komende seizoen zullen de vergaderingen gehouden worden op de woensdagen van 23 september, 25 november, 27 januari en 10 maart, telkens des avonds om acht uur in Hotel Krasnapolski, Warmoesstraat, Amsterdam.

W. J. KABOS, Secretaris.