

REDESCRIPTION THE MORPHOLOGY AND TAXONOMY OF THE APHID *DYSAPHIS FOENICULUS* THEOBALD ON UMBELLIFEROUS PLANTS

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Abstract

Habib and El-Kady (1961) described *Dysaphis (Chomaphis) foeniculus* Theobald. The present author redescribed this species from specimens collected from common fennel, carrot and dill plants from North Sinai during 2003 among the species of living aphids on common fennel it is possible to recognize *D. foeniculus* for its colour and some morphological differential characteristics. This aphid is considered as the main aphid infesting Umbelliferous plants wherever are grown. It attacks the newly tender terminal growth. The secretion of honey dew serves as a medium for sooty mould fungus grows on the infested stalks.

Consulting with Dr. Victor Eastop (The Natural History Museum, London) confirmed that the drawing by Habib and El-kady (1961) for *Dysaphis foeniculus* Theobald does not resemble the original description of this species. He confirmed that the present slides resemble the original description.

INTRODUCTION

Dysaphis foeniculus Theobald is a common species, wherever Umbelliferous plants are grown. It infests common fennel (*Foeniculum vulgare*), carrot (*Daucus carota*) and dill (*Anethum foeniculum*) plants at North Sinai Governorate during 2003. It attacks the newly terminal growth.

The apterae forms form are dense colonies on the basal parts of the host plant and little below ground level.

In Egypt, it was first recorded by Theobald (1922) as *Anuraphis foeniculus*, he described the apterous viviparous female only. Hall (1926) reported this species on *Anethum* spp. and described the alate viviparous female. Habib and El-Kady (1961) reported that they catching this species by light trap at Kouba Palace in Cairo.

Its occurrence has been reported among the species of living aphids on the mentioned host plants from Palestine, (Hill Ris Lamber 1948), Israel, (Bodenheimer and Swirski 1954), East Africa, (Eastop 1958), England, (Stroyan 1963) and Blackman and Eastop (1984). This species was described by Tokuwo and Charles in California (1977) and in Moskova, U. S. S. R. (1987) by Shaposhnikov.

It is possible to recognize *D. foeniculus* for its distinguished colour and some morphological differential characteristics.

Consulting with Dr. Victor Eastop (The Natural History Museum, London) confirmed that the drawing by Habib and El-Kady (1961) for *Dysaphis foeniculus* Theobald does not resemble the original description of this species. He confirmed that the present slides resemble the original description.

The present study aimed to present a complete description for *D. foeniculus* collected from North Sinai, Egypt.

MATERIALS AND METHODS

Fifty specimens from alate and apterous forms of this aphid species were collected from common fennel, dill and carrot plants during February-May, 2004, from the area of North Sinai. Specimens were collected in absolute alcohol, macerated in lactic acid, cleared in chloral-phenol and mounted on glass slides in Swan's medium and some in Canada balsam for taxonomic studies.

RESULTS AND DISCUSSION

Synonymy:

Sappaphis (Dysaphis) foeniculus (Theobald) 1922.

Anuraphis foeniculus (Theobald) 1922.

Aphis ferruginea-striata (Essig) 1938.

Anuraphis ferruginea-striata (Essig) H.R.L. 1948.

Anuraphis ungelicea (Koch) H.R.L. 1948.

Dysaphis ferruginea-striata (H.R.L.) 1948).

Dysaphis foeniculus (Stroyan) 1953.

Chomaphis (Dysaphis) foeniculus (Theobald)

after Eastop (1958)

A- Apterous viviparous female (Fig. 1)

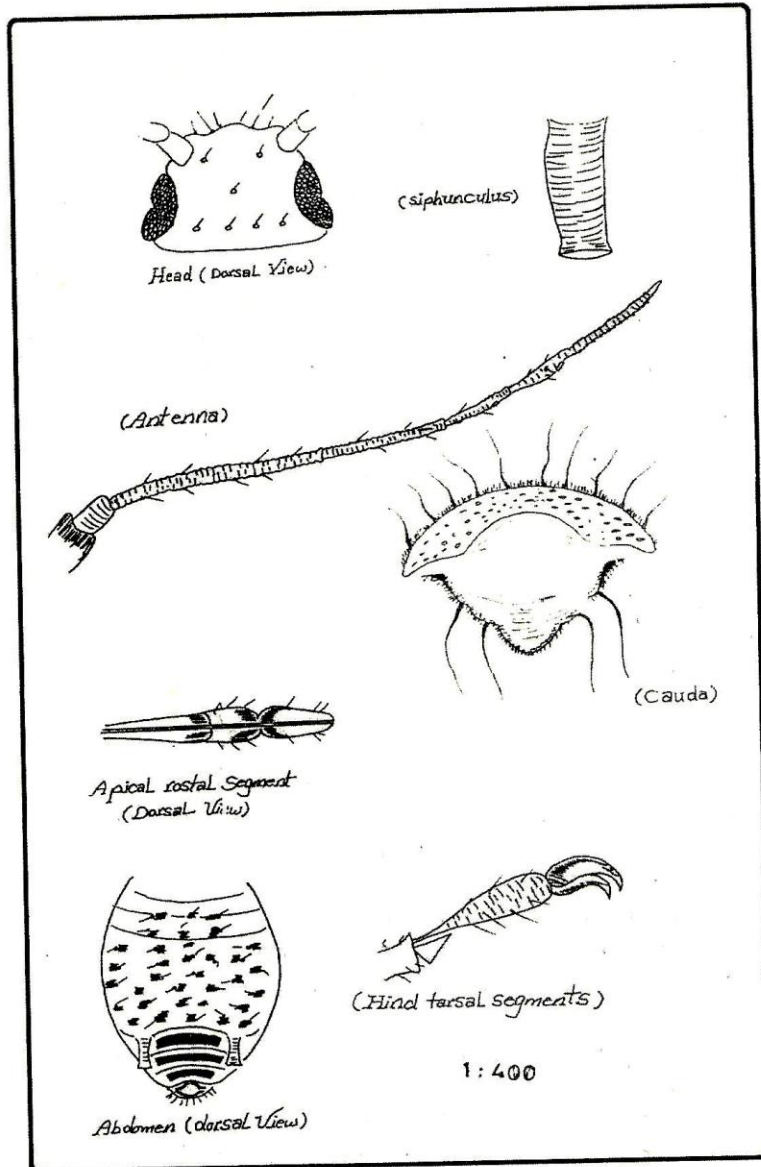
1- Morphology and colour of living specimens :

Form globular, small to medium sized, grey green with a light and dusting of greyish-white wax. Head is darkened. Eyes are almost dark. Proboscis dusky at apex. Antennae are shiny black.

Thorax is dusky. The thorax hairs are arising from dark sclerites. Legs with same colour as body, apices of tibiae and tarsi are dusky.

Abdomen is dark green with small dusky pigmented areas on the abdomen and small lateral papillae. The hairs of abdominal segments are 1-5 usually arising from dark sclerites. Tergites of abdominal segments are 6-8 each with transverse black bar.

Cornicles are black. A yellowish band is found between the cornicles. Cauda is black. There are two dark transverse bands between cornicles and the cauda. Anal plate is black.



* Fig 1. Apterous Viviparous Female of *Dysaphis foeniculus* Thesbald .

2- Microscopic description :

Mean body length is 2.34 mm long, ranged between 2.03 and 2.66 mm. Mean body width is 1.32 mm long, ranged between 1.09 and 1.52 mm. Head is rather with long hairs. Proboscis is long, reaching between 2nd and 3rd coxae, apical proboscis segment 0.15 mm long, with 4 secondary hairs.

Antennal tubercles are small. Antennal formula is 6-3-4-5, 6, segmented, shorter than body, 1.05 mm long, ranged between 0.88 and 1.21 mm. Basal segment is wider but not longer than 2nd segment (0.07 mm long). A few rather long hairs on 1st and 2nd segments. Third antennal segment is longer than the 4th, (mean 0.29 mm long), ranged between 0.23 and 0.34 mm. Also, a few rather long hairs are present on 3rd segment. Fourth segment is a little longer than 5th (mean 0.16 mm long), ranged between 0.13-0.19 mm. There is one rather long hair on the 4th segment. Mean fifth segment length is 0.13 mm and ranged between 0.11 and 0.16 mm. Mean sixth segment length is 0.33 mm and ranged between 0.28 and 0.36 mm. Basal part length is 0.1 mm. Unguis is 0.23 mm long and ranged between 0.18 and 0.26 mm.

The apterous viviparous female without secondary rhinaria. Primary rhinaria present, one circular at apex of fifth segment, another one placed at apex of basal part of sixth segment. A group of small accessory rhinaria present beside primary of sixth segment.

Legs are thick and short. Tarsus is two segmented, with terminal segment longer than basal one (mean 0.12 mm long), with 2 secondary hairs and two claws.

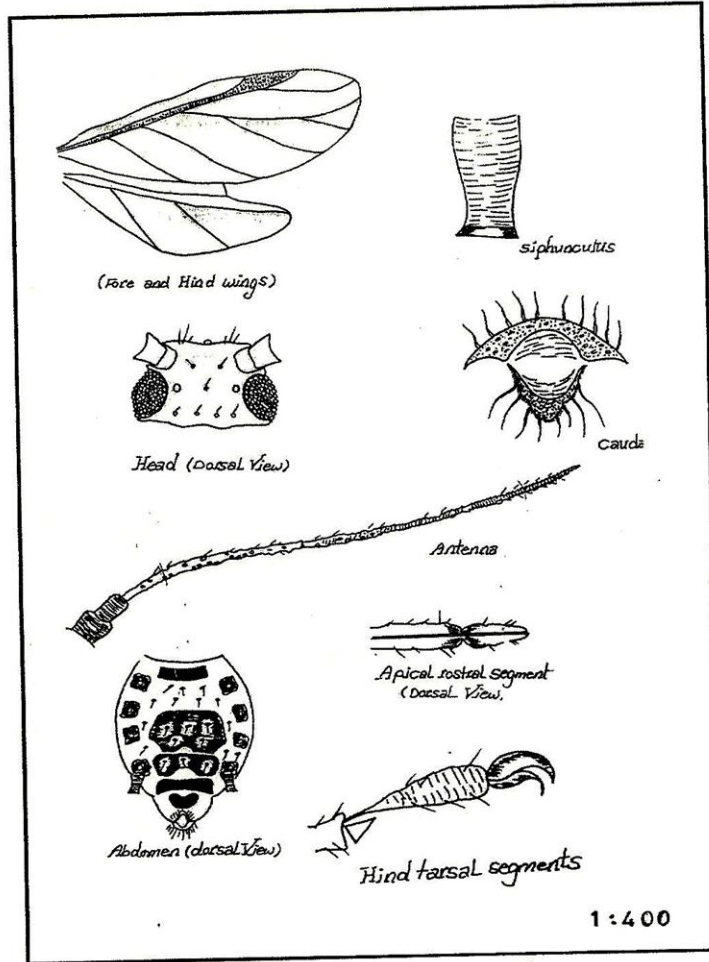
Cornicle is longer than cauda (mean 0.17 mm long), cylindrical and with no reticulation. Cauda is shorter than cornicle (mean 0.12 mm long), with 2 hairs on each side. Anal plate is rounded spinose with many long hairs.

B- Alate viviparous female (Fig. 2) :**1- Morphology and colour of living specimens :**

Female body form is globular, small to medium sized, greenish with a light and dusting of greyish-white wax. Head is shiny black. Eyes are almost black. Proboscis is dusky at apex. Antennae are shiny black.

Thorax is shiny black, wing venation is normal with dusky veins. Legs are very brown except the base of the femora.

Abdomen is dark green to dull black, with a large black dorsal patch, small lateral papillae and 4 lateral dark areas, immediately in front of the cornicles. Cornicle black, usually slightly swollen in the middle, imbricated. Cauda and anal plate are black.



* Fig 2. Alate Viviparous Female of *Dysaphis foeniculus* Thesbald .

2- Microscopic description:

Body length is 2.06 mm and ranged between 1.79 and 2.32 mm. Body width is 1.01 mm and ranged between 0.86 and 1.16 mm. Proboscis long reaching between 2nd and 3rd coxae. Apical proboscis segment is 0.13 mm long with 4 secondary hairs.

Antennal tubercles are small. Antennal formula is 6-3-4-5, 6 segmented and segments 3-6 are imbricated. Antennae are shorter than body (mean 1.32 mm long) and ranged between 1.25 and 1.48 mm. Basal segment is wider but not longer than 2nd (0.06 mm long.) Third segment is longer than 4th (0.42 mm long) and ranged between 0.36 and 0.48 mm. Fourth segment is 0.22 mm long and ranged between 0.18 and 0.25 mm long. A few rather long hairs are present on 1st, 2nd and 3rd antennal segments and only one on segment 4. Fifth segment is 0.15 mm long, ranged between 0.13 and 0.18 mm.

Sixth segment is 0.41 mm long and ranged between 0.36 and 0.45 mm. Basal part is 0.9 mm long. Unguis is 0.32 mm long, ranged between 0.28 and 0.35 mm.

Primary rhinaria are present, one circular at apex of fifth segment, another is placed at apex of based part of sixth segment. A group of small accessory rhinaria are present beside the primary one of the sixth segment. The alate female have secondary rhinaria, 3rd segment with 23 sensoria ranged between 19-30 organs. Fourth segment with 6 sensoria ranged between 3 and 8 organs.

Legs are thick and short. Tarsus have two segments, terminal segment longer than basal one (0.11 mm long) with 4 secondary hairs and carrying two claws.

Cornicles are short, usually slightly swollen in the middle, longer than cauda and 0.13 mm long. Cauda is broad with two hairs on each side, shorter than cornicle, (0.09 mm long).

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إعادة الوصف المورفولوجي والتقسيمي لحشرة المنّ
المعروفة بإسم *Dysaphis Foeniculus* Theobald
والتي تصيب نباتات العائلة الخيمية

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وصف حبيب والقاضى هذه الحشرة عام ١٩٦١. وقد قام الباحث بإعادة وصف هذا النوع من عينات تم جمعها من نباتات الشمر والجزر والشبت فى محافظة شمال سيناء عام ٢٠٠٣. ويمكن تمييز هذا النوع بواسطة لونه وبعض الصفات المورفولوجية، ويعتبر هذا النوع هو النوع الرئيسى الذى يصيب نباتات العائلة الخيمية حيثما وجدت، حيث يصيب السيقان والنموات الحديثة والتي تظهر عليها نموات فطر العفن الأسود الذى تثبت جراثيمه على المادة العسلية التى تفرزها الحشرات. وبالإتصال بالدكتور **Dr. Victor Eastop** بالمتحف البريطانى أكد أن الرسم الذى أشار إليه حبيب والقاضى (١٩٦١) لايشابه فى الوصف مع هذا النوع، وأن العينات التى قام الباحث بجمعها هى التى تتماثل مع الوصف الأصيل لهذا النوع.