Aulacorthum knautiae n. sp. (Homoptera: Aphididae).

By Ole Heie
Skive Seminarium
Skive

Description.

Apterous viviparous female.

Morphological characters. — Body about 2½—3 mm long, oval, with largest width between the hind coxae and the siphunculi. Tergum sclerotic, evenly pale brownish, wrinkled. Hairs short, especially those on the dorsum. Head not darker than the rest of the body, ventrally with many small spinules in the front, in the middle, and below the compound eyes, dorsally with only few minute spinules in two bands from the inner corners of the incision between the frontal tubercles to the dorsal border of the compound eyes. Frontal tubercles well developed, parallelous to very slightly diverging. Median frontal tubercle hardly developed, very low and inconspicuos Hairs on head acute and a little shorter than some of the ventral hairs on the front part of the abdomen, about as long as basal diameter of antennal segment III. The antennae about $1^1/_3$ times as long as body, pigmented like the head, a little darker towards apex and at the apices of antennal segments III, IV, and V and at the apex of base of VIth segment. 1st antennal segment on basal half on outer side with 2—4 short hairs. IIIrd segment with 1—3 secondary rhinaria near base. Processus terminalis brown, $1^1/_{10}$—$1^4/_9$ times IIIrd segment, $4^1/_7$—$5^1/_7$ times base of VIth segment. Hairs on IIIrd segment shorter than $^1/_3$ of basal diameter of the segment. Rostrum long, reaching a little longer than hind coxae; apical segment about $1^1/_4$—$1^5/_7$ times 2nd joint of hind tarsi, laterally with 4—5 pairs of hairs. Siphunculus

pale, a litte brownish near the wide flange, about $^1/_4$—$^3/_{10}$ of the length of the body, cylindrical with widened base, the distal third slightly swollen, somewhat attenuated near apex, with imbricated surface, with about 3 rows of hexagonal cells near the flange. Cauda rather pale with numerous minute spinules, blunt, hardly or

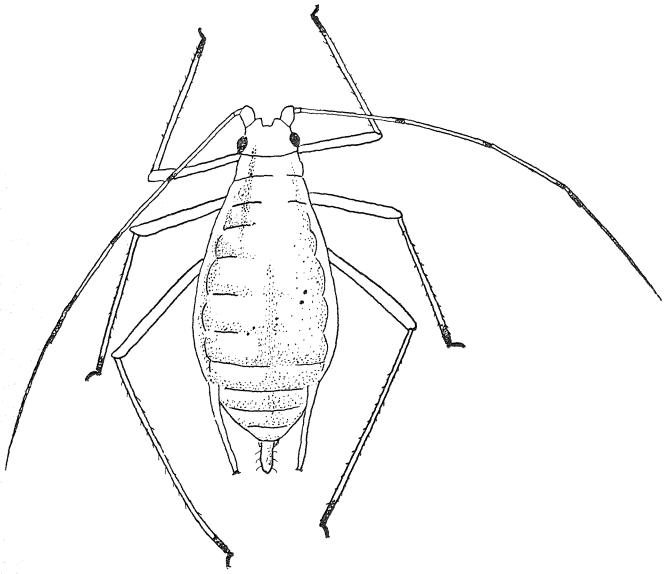

Fig. 1. *Aulacorthum knautiae* n. sp. Apterous viviparous female (× 17).

not constricted, $^1/_3$—$^5/_{11}$ of the siphunculi, with 7 hairs (3 pairs of lateral hairs and one unpaired subapical hair dorsally). Legs long and slender, rather pale, but a little more brownish than the siphunculi, with dark brown tarsi and apices of the tibiae; first tarsal joints with 3, 3, 3 hairs.

Colour. — Yellowish white to pale greenish. The imagines often shiny, the larvae dull. A little more green on the hindmost part of the abdomen than on the rest, but without spots at the bases of the siphunculi. Siphun-

culi and legs pale brownish with dark apices. The antennae pale brownish with dark apices to the segments of the flagellum. Eyes black.

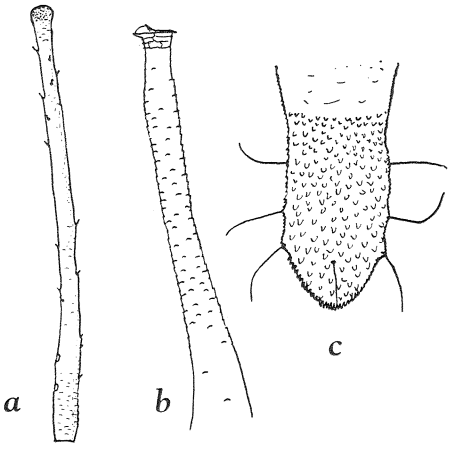

Fig. 2. *Aulacorthum knautiae* n. sp. Apterous viviparous female: a) IIIrd antennal segment (× 70), b) Siphunculus (× 70), c) Cauda (× 100).

Measurements (in mm). —

No.	*Body*	*Ant.*	*Prop. of ant. segments III : IV : V : VIa : VIb*					*Sec. rhin. on III*	*Siph.*	*Cauda*
1	2,82	3,67	100	81	78	24	126	1 + 2	0,76	0,32
2	2,76	3,67	100	81	71	26	108	2 + 2	0,86	0,29
3	2,70	3,76	100	82	74	26	116	1 + 2	0,73	0,29
4	2,69	3,76	100	73	68	24	124	1 + 2	0,76	0,32
5	2,39	3,30	100	82	74	28	144	1 + 2	0,69	0,24
6	2,82	3,67	100	84	69	24	135	2 + 3	0,69	0,27
7	2,66	3,56	100	83	71	24	121	1 + 3	0,67	0,32
8	2,86	3,66	100	78	71	27	112	2 + 3	0,76	0,32

(Nos. 1—3: Addit Forest, 28-6-1959, 4—5: Studsgård, 9-7-1959, 6—8: Brunshåb, 12-7-1959).

Alate viviparous female (based on one specimen).

Morphological characters. — Head and thorax sclerotic and pale brownish. Abdomen with a sclerotic pattern, consisting of brown marginal sclerites on seg-

ments II—IV, pleural intersegmental sclerites irregular of shape between segments I—II, II—III, III—IV, IV—V, and V—VI, and some very irregular dorsal spots on the segments. Some of the spinal hairs are placed on some of these small segmental sclerites. A distinct brownish sclerite is placed laterally before the base of each siphunculus. The area behind the base of each siphunculus imbricated, with a pale postsiphuncular sclerite without distinct margins. Head nearly smooth, with only a few minute spinules on two small ventral areas, one on each side of the base of the mouthparts, and some nearly invisible minute spinules dorsally between the frontal ocellus and the compound eyes. Frontal tubercles rounded, well developed. Antennae about $1\frac{1}{2}$ times as long as body, brownish, the very base of IIIrd segment pale, imbricated. 1st antennal segment on basal half on outer side with 3—4 hairs. IIIrd antennal segment with about 12—13 secondary rhinaria in a single row on basal $^3/_4$. Rostrum reaching hind coxae. Siphunculi and cauda very much like those of the apterous viviparous female, but cauda more distinctly constricted in a distance of about 60 % of the length of the cauda from apex. Wings certainly with normal venation (the specimen here described has 3 branches of media on left fore wing like related aphid species, but only 2 branches on the right one, an abnormity which is not rare among aphids); the veins are pale brown. Hind wings with 2—3 small hooks in the wing coupling apparatus. Legs with the femora brownish with pale base and fuscous apex, tibiae yellow with black apices.

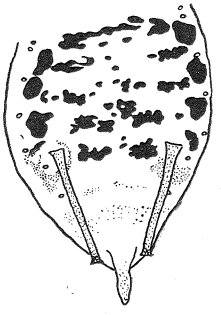

Fig. 3. *Aulacorthum knautiae* n. sp. Alate viviparous female: The dorsum of the abdomen with the sclerotic pattern (× 25). Hairs have not been drawn.

Colour. — Yellowish green with black spots and

transversal bands on abdomen. Head brownish. Thorax brownish yellow with brown scutum. Antennae and legs brownish yellow with darker tarsi and apices of tibiae. Eyes black. The nymph is yellowish white.

Measurements of one specimen. — Length of body: 2,60 mm; antenna: 3,87 mm; siphunculus: 0,60 mm; cauda: 0,30 mm. Proportions of antennal segments III: IV: V: VIa: VIb = 100: 80: 75: 24: 134. Secondary rhinaria on IIIrd antennal segment: 12 + 13.

Oviparous female.

Morphological characters. — Much like apterous viviparous female, but the antennae, siphunculi, and cauda relatively shorter. Tergum pale, not wrinkled. The hind tibiae swollen on basal half, each with about 100—150 small pseudosensoria.

Colour. — As in apterous viviparous female.

Measurements (in mm). —

No.	*Body*	*Ant.*	*Prop. of ant. segments III : IV : V : VIa : VIb*	*Sec. rhin. on III*	*Siph.*	*Cauda*
1	2,34	2,69	100 85 82 31 141	2 + 2	0,50	0,21
2	2,59	2,89	100 83 83 31 143	2 + 2	0,59	0,21

(Nos. 1—2: Dalgas Plantation, 15-10-1959).

Apterous male.

Morphological characters. — Body relatively slender, about 2 mm long. Head sclerotic, often dark brown. Abdomen often with a sclerotic pattern of the same type as in alate viviparous female, consisting of intersegmental sclerites. Frontal tubercles parallelous. Antennae more than 1½ times the length of the body. IIIrd antennal segment with 34—43 secondary rhinaria, IVth segment with 18—29, Vth segment with 13—18. Cauda blunt. Antennae, siphunculi, cauda, and legs coloured as in alate viviparous female.

Colour. — Head brown. Thorax yellow. Abdomen yellowish green with black spots and transversal bands. Antennae and legs rather dark. Siphunculi and cauda greenish. Eyes black.

Measurements (in mm). —

No.	Body	Ant.	Prop. of ant. segm. III : IV : V : VIa : VIb					Sec. rhin. on III, IV, V	Siph.	Cau.
1	2,07	3,03	100	75	71	24	122	34+41, 20+20, 16+13	0,52	0,20
2	2,24	3,51	100	75	69	20	122	42+43, 24+19, 18+17	0,50	0,21
3	1,96	3,39	100	81	75	23	138	41+40, 29+24, 17+15	0,49	0,21
4	1,86	3,04	100	80	80	29	149	39+38, 18+26, 14+15	0,50	0,26

(Nos. 1—3: Dronninglund Great Forest, 22-9-1958, 4: Handbjerg, 27-9-1959).

Type material (apterae viviparae, 1 holotype and 2 paratypes, and one alate morphotype, jr. nr. 1383) from Addit Forest between Silkeborg and Horsens (Jutland), 28-6-1959. Holotype, one paratype, and the alate morphotype in the author's collection, one paratype in the collection of Dr. Hille Ris Lambers.

Host: *Knautia arvensis* (L.) Coult.

Geographical distribution. — The species has been found on several localities in Jutland, Denmark. In my collection following localities are represented: Dronninglund Great Forest (Vendsyssel), Addit Forest (between Silkeborg and Horsens), Haderup (between Skive and Herning), Studsgård (at Herning), Brunshåb (at Viborg), Handbjerg (between Struer and Skive), and Dalgas Coniferous Plantation (between Skive and Viborg). Furthermore it has been seen (but not collected) on two localities: Aulum (between Herning and Holstebro) and Glyngøre (Salling).

Biology. — This aphid lives on the undersides of the basal leaves of its host, usually only few specimens or a single one per leaf. The species has been found from June 28 until October 15, 1959. The populations only consisted of apterous adults and larvae with the exception of the material from Addit Forest, collected on June 28, when one nymph was found, from which I reared an alate viviparous female on June 30.

Sexuales were found on September 22, 1958 (Dronninglund Great Forest, several larvae, from which I rea-

red some males), on September 27, 1959 (Handbjerg, one male reared on October 2), and on October 15, 1959 (Dalgas Plantation, some larvae, from which I reared one male and two oviparous females). In a glass tube some greenish white eggs (size and shape like normal aphid eggs) were laid in October by the oviparous females found at Dalgas Plantation.

Taxonomy. — *Aulacorthum knautiae* n. sp. is easily distinguishable from *A. solani* Kalt. by following characters: 1) Ist antennal segment with 2—4 hairs on basal part on outer side (*A. solani* usually with only 1 hair), 2) No green spots at bases of siphunculi when alive, 3) The head with only few minute spinules dorsally, 4) Rostrum longer (reaching hind coxae), with longer apical segment.

The first of the above-mentioned characters is common to *A. rufum* H. R. L., *A. palustre* H. R. L., and *A. knautiae* n. sp.

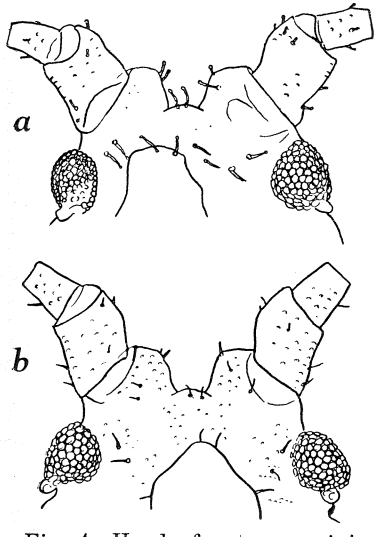

Fig. 4. Head of apterous viviparous female of a) *Aulacorthum palustre* H. R. L. and b) *A. knautiae* n. sp. (× 70). The hairs of *palustre* with swollen apices.

A. rufum, living on *Vaccinium myrtillus*, is apple-green or dirty brown-reddish, with smooth or nearly smoth head, without darker apices to antennal segments III and IV, with fewer secondary rhinaria on segment III, viz. 0—2 in the apterous female, 5—12 in the alate female (Hille Ris Lambers 1947), so it can easily be distinguished from *A. knautiae*.

The hosts of *A. palustre* are *Leontodon* (Hille Ris Lambers 1947), *Taraxa-*

cum (Börner 1952, Stroyan 1955), and *Hypochoeris* and *Picris* (Hille Ris Lambers in litt.). Dr. Hille Ris Lambers most kindly sent me cotypes of *A. palustre* (apt. viv.), so that a comparison with this species could be made. The hairs on the head are distinctly capitate, whereas the hairs on the head of *knautiae* are tapering (fig. 4), and besides the siphunculi of *palustre* are a little shorter ($^2/_9$—$^1/_4$ body length) than those of *knautiae* ($^1/_4$—$^3/_{10}$ body length). According to Hille Ris Lambers (1947) the colour of apterous *palustre* is pink or greenish, with usually a rusty or bright green spot near base of each siphunculus, whereas only yellowish green or yellowish white specimens of *knautiae* have been seen, without spots near bases of siphunculi. The dorsum of the head of *palustre* is completely smooth, whereas *knautiae* has some small spinules, though very few and minute.

References.

Börner, C. (1952): Europae centralis Aphides. — Mitt. Thür. Bot. Ges. Beiheft 3, 488 pp.

Hille Ris Lambers, D. (1947): Contributions to a Monograph of the Aphididae of Europe. III. — Temminckia, Leiden, VII: 179—319.

Stroyan, H. L. G. (1955): Recent additions to the British aphid fauna. Part II. — Trans. R. ent. Soc. Lond. 106: 283—340.