

Sappaphis leefmansii nov. spec. (Homopt., Aphid.)

by

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Bennekom

In the last few years it has been pointed out by BÖRNER (1950), that not one species, *Sappaphis devectora* Wlk., but at least 4 species of *Sappaphis* are the cause of a conspicuous red leafcurl on apple. These species differ considerably in their economic importance. Although until now only two species have been found in the Netherlands, all of them probably occur in this country.

1. *Sappaphis devectora* (Wlk.) lives exclusively on apple, where the oviparae lay their hibernating eggs already in the end of June and the beginning of July. This species until now is only known from the Southern half of the Netherlands, where it is very local. But where it occurs it is a dangerous pest, which in contrast to the other aphids on apple escapes routine control measures against hibernating eggs. The species is also known from Southern England.

2. *Sappaphis anthrisci* (Börner) migrates between apple and *Anthriscus silvestris*. Since there are only two generations on apple — the fundatrix and its winged progeny — the damage to apple is small. Mostly only a few leaves on a twig on which a fundatrix developed are galled. In the Netherlands this species has not yet been found on apple, but it probably infests apple trees now and then, because it is not rare on the secondary hostplant, *Anthriscus silvestris*, where it occurs with another species, *Sappaphis hirsutissima*. Material was collected from the crown of *Anthriscus* in Friesland, Guelderland and Limburg. It also occurs in England, Germany, France and Switzerland.

3. *Sappaphis chaerophylli* (Börner) has a biology very similar to that of the preceding species, but the secondary hostplants are *Chaerophyllum temulum* and *Ch. bulbosum*. Though it occurs in England and Germany it has not yet been found in the Netherlands.

4. *Sappaphis brancoi* (Börner) migrates from apple to *Valeriana* spp. Its cycle is like that in the last mentioned species, but more than 2 generations may develop on apple. As yet this species is only known from Germany and Russia¹).

While searching for the latter species I discovered a *Sappaphis* on underground parts of *Valeriana officinalis* at Wageningen. These insects fitted the brief description of *S. brancoi* published by Börner, but biological work showed that its cycle is different. Comparison with typical material of *brancoi* Börner, received from Dr C. BÖRNER, showed that the material from Wageningen can easily be separated from corresponding morphs of *S. brancoi* (Börner).

In memory of Dr S. LEEFMANS the *Sappaphis* on *Valeriana officinalis* from Wageningen is here described as

¹) In Russia under the name *Yezabura pomaria* Shaposhnikov. The exact date of the publication of the name *pomaria* is not yet known. It is possible that *pomaria* is older than *brancoi*.

Sappaphis leefmansii nov. spec.

APTEROUS VIVIPAROUS FEMALE.

Morphological characters. Body oval, slightly depressed, about 1.80—2.05 mm long. Head and pronotum pale brownish sclerotic, the head rather darker near the bases of the antennae; mesonotum with a rather broad sclerotic transverse band; metanotum and abd. tergite I with irregular, paired spino-pleural sclerites and like the abdominal segments with darker, sharply bordered pleural intersegmental sclerites; abd. tergites VIII to V or III with smaller or larger spinal transverse bars, narrowing from tergite V cephalad and often partly coalescing into a very incomplete central sclerite; marginal sclerites on abdomen reduced to very narrow rings around the enormous, quite flat marginal tubercles which are present on segments I—VII; the marginal tubercles on pronotum often larger than the compound eyes. Spinal tubercles on vertex very large, but the customary ones on VIIth and VIIIth abd. tergite nearly always absent and if occasionally one or two are present on VIIIth abd. tergite, they are surprisingly small. Diameter of the marginal tubercles on 1st abd. tergite 8—12 times the length of the nearest dorsal hair. Dorsal hairs, including those on VIIIth abd. tergite very short, blunt; the spinal hairs on IIIrd abd. tergite about half as long as smallest diameter of IIIrd ant. segment (at its basal constriction); hairs on the front conspicuously adpressed; on abdomen the transverse rows of hairs not duplicated, VIIIth tergite with 4 hairs. Frontal tubercles faintly indicated. Antennae about $\frac{2}{3}$ length of body, dark with basal part of IIIrd segment paler; IIIrd segment thick with much constricted base, with nearly only on distal half 3—23 small, scattered rhinaria; IVth segment over most of its circumference with about 11—22 rhinaria, of which a few may be slightly larger; Vth segment at most $1\frac{1}{2}$ times as long as base of VIth segment, usually only with the primary rhinarium, occasionally with 1—2 small secondary rhinaria; processus terminalis longer than IIIrd segment, $2\frac{3}{4}$ — $3\frac{3}{4}$ times base of VIth segment. Hairs on IIIrd segment extremely short, only $\frac{1}{4}$ of smallest diameter of the segment. Rostrum very long, often reaching as far as the siphunculi; apical segment long and slender, about $1\frac{1}{2}$ times as long as 2nd joint of hind tarsi, with 5—8 shortish hairs besides the 3 subapical pairs of rather long hairs. Siphunculi nearly cylindrical, more tapering near base, in the middle about as thick as the hind tibiae in the middle, long, up to $\frac{1}{5}$ length of body, superficially and rather dispersally imbricated, pale with more or less extensively dark apex, with rather wide flange. Cauda darkish, a little shorter than its basal width, conspicuously constricted near base, apex subacute, length about $\frac{2}{7}$ of the siphunculi, with 9—15 long, curved, acute hairs. Femore dark with pale base, tibiae pale with the apices (especially dorsally) and the very bases brownish; basal half of the tibiae dorsally with very short, adpressed and blunt hairs, ventrally with slightly more spreading and acute hairs; first tarsal joints with 3 hairs.

Colour. In life grey because of waxy excretion, in alcohol very pale green with the sclerotic areas brownish to brown. Legs, etc., vide morphological characters.

Measurements in mm:

No.	Length body	Ant.	Siph.	Cau.	Rhin. III	on segment IV	V	Ant. segments III	IV	V	VI
1	1.98	1.21	0.36	0.10	9 & 14	13 & 14	0 & 0	0.28	0.19	0.14	(0.12 + 0.33)
2	1.84	1.22	0.37	0.10	9 & 10	12 & 13	0 & 0	0.29	0.20	0.15	(0.10 + 0.35)
3	1.90	1.20	0.37	0.11	3 & 6	13 & 14	0 & 0	0.27	2.20	0.14	(0.10 + 0.35)
4	1.80	1.18	0.35	0.10	5 & 5	11 & 14	0 & 0	0.27	0.21	0.14	(0.10 + 0.33)
5	1.85	1.26	0.36	0.10	23 & 23	19 & 22	2 & 0	0.29	0.21	0.14	(0.10 + 0.37)
6	1.84	1.27	0.36	0.10	19 & 22	22 & 22	0 & 0	0.30	0.21	0.14	(0.11 + 0.36)

(All from *Valeriana officinalis*, Wageningen, 13.IX.'53, leg. D.H.R.L.).

OVIPAROUS FEMALE.

Morphological characters. Very much as in the preceding form, but body slightly smaller. Sclerotic pattern on abdomen strongly reduced, so that spinal sclerites generally do not occur cephalad Vth tergite. Antennae comparatively shorter; IIIrd segment frequently without rhinaria, at most with 6 small ones near apex; IVth segment with about 1—7 rhinaria along one side; Vth segment without secondary rhinaria. Siphunculi darker, but always with pale base, at most $\frac{1}{6}$ length of body. Hind tibiae completely dark, bloated, in the middle up to more than twice as thick as the siphunculi in the middle, with very numerous pseudosensoria.

Colour. In life dark brownish grey, in alcohol reddish brown admixed with green. Otherwise as in apterae viviparae.

Measurements in mm:

No.	Length body	Ant.	Siph.	Cau.	Rhin. III	on segment IV	Ant. segments III	IV	V	VI
1	1.74	1.07	0.28	0.10	0 & 0	1 & 1	0.23	0.16	0.13	(0.10 + 0.31)
2	1.85	1.13	0.28	0.10	0 & 0	2 & 7	0.23	0.17	0.14	(0.10 + 0.35)
3	1.86	1.10	0.29	0.11	0 & 0	3 & 5	0.23	0.18	0.13	(0.10 + 0.32)
4	1.94	1.12	0.31	0.11	0 & 0	5 & 5	0.24	0.19	0.13	(0.10 + 0.32)
5	1.88	1.12	0.30	0.11	0 & 0	3 & 3	0.24	0.17	0.13	(0.10 + 0.34)
6	1.63	1.11	0.29	0.10	3 & 4	5 & 6	0.24	0.18	0.14	(0.09 + 0.31)

(All from *Valeriana officinalis*, Wageningen; 1—5, 1.X.'53; 6, 11.X.'53, leg. D.H.R.L.).

ALATE MALE.

Morphological characters. Head and thorax black sclerotic, abdomen membranous with dark sclerotic spino-pleural transverse bars across tergites III—VIII, of which those of tergites III—VII are laterally more or less connected by the pleural intersegmental sclerites. Marginal tubercles very much smaller than in the preceding morphs, but those on pronotum still so large that they are easily overlooked. Dorsal hairs slightly longer than in the preceding morphs, but those on VIIIth abd. tergite still about as long as the others. Antennae very much longer than in the other morphs, about $1\frac{1}{4}$ times as long as body; IIIrd segment very tuberculate, with about 45—53 rather small, slightly protruding, partly transversely oval, scattered rhinaria which are most numerous on basal half; IVth segment with 17—20 scattered rhinaria; Vth segment with 2—6 rhinaria along one side, often in single file; processus terminalis about 5—6 times base of VIth segment, much longer than IIIrd segment. Siphunculi dark, rather thin, almost cylindrical, very faintly and dispersely imbricated, about

$\frac{1}{8}$ length of body. Genitalia normal. Legs with the femora almost completely dark. Wings with pale veins. Other characters about as in apterous viviparous female.

Colour. Seemingly black, but abdomen partly dark greenish brown.

Measurements in mm:

No.	Length body	Ant.	Siph.	Cau.	Rhin. on segment			Ant. segments			VI
					III	IV	V	III	IV	V	
1	1.53	1.97	0.20	0.09	50 & 51	18 & 17	6 & 5	0.49	0.33	0.23	(0.13 + 0.65)
2	1.52	1.95	0.19	0.07	45 & 52	2 & 20	2 & 5	0.49	0.35	0.22	(0.11 + 0.64)
3	1.60	1.99	0.20	0.07	49 & 53	17 & 22	4 & 4	0.49	0.34	0.24	(0.12 + 0.65)

(From *Valeriana officinalis*, Wageningen; 1, 1.X.'53; 2—3, 2.XI.'53; leg. D.H.R.L.).

Discussion. Considerable numbers of this aphid were found on the collar, rhizomes and roots of *Valeriana* plants in the Arboretum at Wageningen. The aphids lived rather deep in the soil and disappeared with surprising speed into the tunnels of a colony of *Lasius niger*, aided by the ants. Colonies were started on potted *Valeriana* on which the aphids were attended by *Lasius flavus*. The aphids multiplied seemingly well, but all the larvae developed into sexuales, so that evidently the gynoparae are apterous, for no alate females developed. The same happened in the type locality.

Dr BÖRNER sent me three sets of material of *brancoi*, 1. gynoparae and males transmitted from *Valeriana sambucifolia* to *Pirus malus*; 2. apterae viviparae (presumably 3rd generation) from *Valeriana sambucifolia*; 3. an aptera and an alate migrant from apple. All this material differs from that of *S. leefmansii* in having the hairs on VIIIth abd. tergite much longer than those on the tergites more cephalad, and by the regularity of spinal tubercles on abd. tergites VIII and sometimes VII. The marginal tubercles are smaller, the siphunculi more conical, considerably shorter and only basally pale. The rostrum and also the last segment are notably shorter than in *S. leefmansii*, while the hairs on the basal half of that segment are almost as long as those near its apex. In the males of *S. brancoi* which I examined the tubercles on the vertex are petiolate, rather like *Lycoperdon*, but I do not know whether that character is constant. In *S. leefmansii* the tubercles on the vertex are nearly flat and about as large as the ocelli or larger.

Confusion between *S. leefmansii* and the apple-infesting *S. brancoi* is likely to occur in future. It is clear that there exist two biologically different species on *Valeriana*, one migrating to apple, one completing its cyclus on *Valeriana*, but it is not certain that the differences enumerated above will hold for all samples.

Type s. In the author's collection.

Overwinterende *Polygonia c-album* L. Bij het schoonharken van een ruig begroeide slootkant op 9 October 1953 vond ik een exemplaar van *Polygonia c-album* L. in een geheel lethargische toestand tussen dor beukenblad en „onkruid“. Klaarblijkelijk een begin van winterslaap als imago.

Van sommige andere Lepidopteren, zoals *Aglais urticae* L., *Gonepteryx rhamni* L. en *Scoliopteryx libatrix* L. vindt men overwinterende vlinders natuurlijk vrij geregeld, maar bij de Witte C-vlinder had ik het verschijnsel nog niet eerder waargenomen.

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