

# A NEW SPECIES OF *ACYRTHOSIPHON* (HOMOPTERA, APHIDOIDEA) FROM *DAPHNE GNIDIUM* IN THE CANARY ISLANDS AND PORTUGAL

By FERNANDO ALBANO ILHARCO \*

With 1 table

**ABSTRACT.** *Acyrtosiphon daphnidis* n. sp. is described from *Daphne gnidium* (Thymelaceae) in the Canary Islands and Portugal. It is close to *Acyrtosiphon caraganae* and to *A. loti* but the alate viviparous female bears secondary rhinaria on the antennal joint IV.

**RESUMO.** Descreve-se *Acyrtosiphon daphnidis* n. sp. a partir de material colhido sobre *Daphne gnidium* nas ilhas Canárias e em Portugal. A nova espécie é afim de *Acyrtosiphon caraganae* e de *A. loti* mas a fêmea alada vivípara produz sensórios secundários no IV segmento das antenas.

## INTRODUCTION

Up till now, *Macrosiphum daphnidis* BÖRNER, 1940, was the only aphid species known from *Daphne*. Good descriptions of that species can be seen in OSSIANNILSSON (1959) (as *Macrosiphum daphnes* n. sp.) and in MEIER (1961).

In 1963, GOMEZ-MENOR studying the aphids of the Canary Islands, used the name *Macrosiphon daphnidis* C. B. (1940) for an aphid which was not the true *Macrosiphum daphnidis*. Later TAMBS-LYCHE (1971) deleted the species from the list of Canarian aphids but did not suggest any identity to the aphid.

In 1977 an unknown *Acyrtosiphon* species was collected in Cascais, Portugal, on *Daphne gnidium*. Since then other samples containing the same species have been collected in Portugal.

In 1985 the author received from Dr. J. M. NIETO NAFRIA, University of León, Spain, some slides containing an *Acyrtosiphon* species from *Daphne gnidium* in La Orotava, Tenerife, Canary Islands.

The study of the Portuguese and Canarian material reveals that the *Acyrtosiphon* from *Daphne* is a new species to be described hereinafter. Regarding the *Macrosiphon daphnidis* of GOMEZ-MENOR (1963), collected also at La Orotava, Tenerife, I assume it to be *Acyrtosiphon daphnidis* n. sp.

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\* Estação Agronómica Nacional, 2780 OEIRAS, Portugal

*Acyrsosphon daphnidis* n. sp.*Apterous viviparous female* (Table 1)

Described from 47 specimens with body length 2.00 - 2.74mm. Macerated specimens usually quite pale but sometimes with the following parts more or less dusky: apical half of antennal joint V, joint VI of antennae, tarsi and siphunculi. Antennal tubercles well developed with the inner side slightly scabrous. Median frontal tubercle distinct. Antennae 0.84 - 1.14 times as long as body. Processus terminalis 488 - 740µm long, 3.32 - 4.42 times the base of segment VI which is 125 - 188µm long, and 0.93 - 1.22 times the length of joint III which is 475 - 675µm long. Third antennal segment bearing 1-5 rhinaria near its base. First antennal segment bearing 6-14 hairs. Rostrum reaching to mid coxae. Ultimate rostral joint 120 - 137µm long, 0.77 - 0.96 of the second segment of hind tarsi which are 130 - 173µm long, and bearing 6 - 9 secondary hairs. First tarsal segments with 3, 3, 3 hairs, the mid hair shorter than the lateral ones. Siphunculi imbricated, cylindrical with dilated base, 0.53 - 0.77mm long, 0.22 - 0.34 of the body length and 1.87 - 2.60 times as long as cauda. Cauda with a constriction in basal third, 0.25 - 0.36mm long and bearing 8-13 pointed hairs, one of which is always apically placed. Subgenital plate bearing 2-4 primary hairs, 8-14 along the posterior margin and 0-5 at the central area. Antennal hairs, dorsal hairs on head, thorax and abdomen, hairs of femora and of subgenital plate very short, thick and with expanded tips. Ventral hairs of body and the hairs of coxae and trochanters fine and acute, about 40µm, but frequently also with expanded tips and then thicker and shorter. Tibial hairs mostly thick and with expanded tip, increasing in length towards the apex. Hairs on antennal segment III 8 - 17µm long, one third as long as the basal diameter of the segment. The longest dorsal cephalic hairs are those of the first row and are 14 - 30µm long. The eighth abdominal tergite bears 4 - 10 hairs, distinctly divided in two groups, the longest measuring 13 - 27µm. The other dorsal hairs of thorax and abdomen are shorter. Lateral tubercles only present on prothorax. Spinal tubercles absent. Colour in life: green to yellowish green with red eyes. Body covered with a greyish white wax powder, which accentuates the dorsal segmentation because the junctions of the tergites are bare.

*Alate viviparous female* (Table 1)

Described from 6 specimens with body length 2.38 - 2.75mm. Characters generally as in apterous viviparous female, but head, thorax and antennae a little darker and abdomen with a hardly visible sclerotic pattern of pleural intersegmental sclerites, these bearing usually a small lateral tubercle on 2nd - 4th segments. Median frontal tubercle of head weakly developed. Antennae 0.98 - 1.03 as long as body. Processus terminalis 625 - 750µm long, 3.75 - 4.17 times base of segment VI which is 163 - 200µm long, and 1.08 - 1.16 times the

length of joint III which is 580 - 675µm long. Third antennal segment bearing 13 - 17 rhinaria in a row occupying the whole length of the segment. Fourth antennal segment bearing 2 - 9 rhinaria in a row but irregularly placed over the segment. First antennal segment bearing 6 - 9 hairs. Ultimate rostral joint 125 - 135µm long, 0.81 - 0.89 of the second segment of hind tarsi which are 150 - 155µm long, and bearing 6 - 8 secondary hairs. Siphunculi 0.55 - 0.65mm long, 0.23 - 0.25 of the body length and 2.03 - 2.42 times as long as cauda. Cauda 0.25 - 0.32mm long and bearing 8 - 11 hairs.

Hairs on antennal segment III 9 - 13µm long. Dorsal cephalic hairs of the first row 16 - 22µm long. Eighth abdominal tergite with 7 - 9 hairs, the longest measuring 20 - 23µm but in one specimen there is a fine and acute hair with 59µm in length. Otherwise as in apterous viviparous female.

### TYPE MATERIAL

The holotype is an apterous viviparous female (specimen no.6) of sample n°. 1901 of the Aphid Collection of Estação Agronómica Nacional (CAEAN), Oeiras, Portugal: Portugal, Cascais, Oitavos, 3.II.1977, col. F. A. ILHARCO, A. GOMES & J. PINTO. It is kept in the CAEAN.

The following samples contain paratypes:

No. 1901/CAEAN, collected with the holotype. Apterous and alate females.

No. 2178/CAEAN, Portugal, Macedo de Cavaleiros, Vinhas, 24.VI.1977, col. F. A. ILHARCO & J. PINTO. Apterous and alate females.

No. 2605/CAEAN, *Idem*, 16.VI. 1978, col. *Idem*. Apterous females.

No. 2682/CAEAN, *Idem*, 4.VIII. 1978, col. J. PINTO & R. PONTES. Apterous and alate females.

No. T-188/NIETO NAFRIA, Canary Islands, Tenerife, La Orotava, 10. IV.1976. Col. NIETO NAFRIA. Apterous females.

No. T-223/NIETO NAFRIA, *Idem*, 5.XII.1976, col. CARNERO HERNANDEZ. Apterous females.

The paratype material from Portugal is kept in the CAEAN.

The paratypes from the Canary Islands belong to the aphid collection of Dr. J. M. NIETO NAFRIA, Departamento de Biología Animal, Universidad de León, León, Spain. One slide from sample T-188, containing four apterous viviparous females, has been most kindly offered to CAEAN.

### BIOLOGY

*Acyrtosiphon daphnidis* lives in small populations on the underside of the younger leaves of *Daphne gnidium* L. (Thymelaeaceae). As it is of the same colour as the host plant

the colonies are not easily seen.

I have never found any natural enemy predating or parasitizing on this aphid.

I, However believe they exist in spite of the host plant being toxic to some animals. As *Daphne gnidium* is widespread in Portugal and no other aphid besides *Macrosiphum daphnidis* (unknown in Portugal) can live on it, *Daphne* with *A. daphnidis* can be a focus of natural enemies of interest to the biological equilibrium of pest aphids. Thus, *A. daphnidis* may well be a useful aphid (ILHARCO, 1992).

### TAXONOMY

The presence of secondary sensoria on the fourth antennal joint of the alate females is very rare within the genus *Acyrtosiphon*. EASTOP (1971) considered only two species showing this feature, the Nearctic *Acyrtosiphon macrosiphon* (WILSON) and *A. pseudodirhodum* (PATCH). I myself added the European *Acyrtosiphon thracicus* TASHEV, 1962, not considered by EASTOP (*op. cit.*) as the alate forms were then certainly, unknown to him. However, either *A. macrosiphon* and *A. pseudodirhodum* or *A. thracicus* are species quite different from *A. daphnidis*, the first two, for instance, with a processus terminalis of antennae 6 - 10 times as long as base of segment VI, the third with the apical rostral joint being shorter than 100µm and the cauda without any constriction.

A number of *Acyrtosiphon* species can be confused with *A. daphnidis* if the host plant is not known and the apterous viviparous females are the only available material. Some characteristics can be useful for the separation of *A. daphnidis* from other similar European species. Thus, in *A. lactucae* (PASSERINI) and *A. primulae* MARTIN the ultimate rostral segment bears more than 16 secondary hairs; in *A. euphorbiae* BÖRNER the ultimate rostral segment is about half as long as the second segment of hind tarsi and in *A. malvae* (MOSLEY) *s. lat.* it is longer than the same segment; in *A. chelidonii* (KALTENBACH) the antennal segment III has no rhinaria; in *A. pisum* (HARRIS) and *A. spartii* (KOCH) the siphunculi are remarkably thin, in the apical half about as wide as antennal joint III at middle and antennal segment I bearing 13 - 23 hairs; in *A. cyparissiae* (KOCH) the first tarsal segments bear 5 - 7 hairs; in *A. lambersi* LECLANT & REMAUDIÈRE the processus terminalis of antennae is shorter than 3 times basal part of VI, in *A. ilka* MORDWILKO the siphunculi are at most 1.8 times as long as cauda and the apical rostral joint is equal in length to the second segment of hind tarsi; in *A. gossypi* (MORDWILKO) the siphunculi are longer than 1mm, about 0.40 of body length; in *A. ericetorum* HILLE RIS LAMBERS and *A. chinospartii* NIETO NAFRIA & MIER DURANTE the cauda has no constriction and siphunculi are at most 1.70 times as long as cauda.

*Acyrtosiphon daphnidis* seems very much closer to *A. loti* (THEOBALD) and to *A. caraganae* (CHOLODKOVSKY). However, in *A. loti* the cauda is longer and the siphunculi

are at most 1.7 times as long as cauda. In *A. caraganae* both siphunculi and cauda are longer but their ratio is 1.50 - 2,10. Still the siphunculi are thicker in *A. caraganae* if compared with the diameter of hind tibiae.

This feature is described by EASTOP (1971) as follows: "Siphunculi gradually decreasing in diameter from base to apex, about 10 times as long as their middle diameter which is about 1.5 times as thick as the middle diameter of the hind tibiae".

For the taxonomic notes here presented I have seen the following species of *Acyrtosiphon*: *chelidonii*, *ilka*, *lactucae*, *loti*, *malvae*, *pisum*, *spartii* and *thracicus*. For the other species mentioned in this paper I used the descriptions by EASTOP (1971), HILLE RIS LAMBERS (1947, 1959), LECLANT & REMAUDIÈRE (1974), MARTIN (1981) and NIETO NAFRIA & MIER DURANTE (1987).

### ACKNOWLEDGEMENTS

I would like to thank Dr. J. M. NIETO NAFRIA, University of León, Spain for the loan of slides containing the new species from the Canary Islands and for the gift of a slide with the same species.

TABLE 1

**Biometric data for apterous and alate viviparous females of *Acyrtosiphon daphnidis* n. sp.**

No.	Body mm	Antennae mm	Antennal segments µm		Secondary rhinaria		A.r.j. µm	2nd j.h.t. µm	Siphunculi mm	Cauda mm
			III	IV	III	IV				
1	2.56	2.21	550	170 + 600	2 & 2	-	125	140	0.67	0.31
6	2.69	2.32	563	175 + 630	3 & 4	-	125	152	0.73	0.31
12	2.74	2.39	588	163 + 640	3 & 3	-	133	152	0.69	0.33
14	2.29	2.30	625	163 + 650	2 & 4	-	130	150	0.67	0.30
17	2.00	2.17	500	150 + 600	2 & -	-	130	150	0.65	0.25
20	2.02	210	488	150 + 563	2 & 3	-	130	150	0.63	0.28
25	2.38	2.00	490	125 + 488	3 & 2	-	120	130	0.53	-
30	2.40	2.33	538	168 + 650	5 & 4	-	127	142	0.65	0.28
32	2.56	250	588	165 + 613	3 & 2	-	135	156	0.64	0.32
34	2.53	250	575	163 + 688	3 & 3	-	133	165	0.69	0.33
44	2.59	2.75	675	188 + 740	5 & 3	-	134	173	0.75	0.35
45	2.63	2.63	625	188 + 663	3 & 3	-	135	165	0.75	0.34
48	2.38	2.45	612	175 + 663	14 & 14	7 & 6	127	150	0.55	0.25
51	2.75	2.77	688	200 + 750	13 & 16	9 & 6	135	151	0.63	0.30
53	2.55	2.50	580	163 + 625	15 & 15	9 & 9	130	150	0.59	0.29

1-45, Apterous viviparous females. 48-53, alate viviparous females. 6, holotype.

1, 6 and 48 from sample no. 1901/CAEAN; 12, 14 and 51 from sample no. 2178/CAEAN;

17 and 20 from sample n° 2605/CAEAN; 25, 30 and 53 from sample n° 2682/CAEAN;

32 and 34 from sample n° T-188/NIETO NAFRIA; 44 and 45 from sample n° T-223 NIETO NAFRIA.

a.r.j. = apical rostral joint. 2nd j.h.t = 2nd joint of hind tarsi.

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