Boll. Zool. agr. Bachic.
Ser. II, 28 (2), 1996: 99-109

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On a new *Absinthaphis* species living on *Artemisia variabilis* in Italy (Homoptera Aphididae)

Abstract - The new aphid species *Absinthaphis brutii* sp.n. (Homoptera Aphididae) is described from a Southern region (Calabria) of Italy. The new species is illustrated, and brief notes are provided on morphological features and taxonomy.

Riassunto - *Descrizione di una nuova specie di* Absinthaphis *(Homoptera Aphididae) vivente in Italia su* Artemisia variabilis.

Viene descritta la nuova specie *Absinthaphis brutii*, Afidino raccolto in Calabria su *Artemisia variabilis* Ten.. L'analisi morfologica delle forme virginopare attera e alata è corredata da illustrazioni e tabelle biometriche comparate, al fine di poter distinguere la nuova entità dalle specie più affini. Sono riportate, inoltre, un commento tassonomico e brevi notizie bio-ecologiche sulla nuova specie.

Key words: Homoptera Aphididae, *Absinthaphis brutii* sp. n., taxonomy, Italy.

Some years ago, in Southern Italy, a sample of an *Absinthaphis* was collected on *Artemisia variabilis* Ten.. In a first attempt, the aphid was believed to be *Aphis* (*Absinthaphis*) *georgii* Mier & Nieto, described from Spain a few years ago (Mier Durante & Nieto Nafria, 1991); nevertheless, a direct comparison with paratypes of this species showed a number of small morphological differences. The close relationships between the two aphids may lead to consider the Italian specimens as a variant form, due to effects of ecological factors. Unfortunately, attempts for collecting other samples of the same species, even in different periods of the year and in adjacent areas, proved to be negative up to now. The host plant species (*A. variabilis*) of the Italian aphid is considered as a local endemism (Pignatti, 1982), being a vicariant taxon of the much wider distributed *A. campestris* L., s.l., which represents the host of *A. georgii*, as well as of other congeneric aphid species. In

such a way, it cannot be excluded that a parallel process of speciation was involved not only in the host plants but also in their linked aphid species. Therefore, the Italian aphid is here considered as a new species, of which a breaf description follows.

Absinthaphis brutii sp. n.

Apterous viviparous female (described from 12 specimens). Body broadly oval, 1.24-1.55 mm in length. Colour when alive dark green, slightly covered with greysh waxy powder, and with a rusting colour patch around and between the siphunculi; middle portion of antennae (joints III to V, except the apex of the latter) and tibiae (except their apex) pale; remaining parts of appendices, including head capsule, siphunculi, cauda and dorsal sclerifications, dark brown to blackish.

Dorsal cuticle markedly reticulated, as normally encountered in this genus. Dorsal body hairs short, rather stout and pointed apically; their length being 12-16 μ on frons, 10-16 μ on 3rd urotergite, and 13-18 μ on 8th urotergite; the latter bearing 4-6 hairs. Ventral body hairs short and pointed; nevertheless, they are at least partly longer than the dorsal ones and up to 19-28 μ in length on the 2nd-5th urosternites. Marginal tubercles only present on prothorax, 1st and 7th abdominal segments; the last two tubercles are 18-30 μ in basal diameter, being similar in size or just smaller (0.75-1.00) to the nearest stigmal plate maximum diameter. Dorsal sclerifications always composed of small pleural intersegmental muscle sclerites; in addition, usually, there are sclerified areas on prothorax, lateral sides of mesothorax and on urotergites 5th to 8th; the latter normally consisting of two variable but usually rather large submedian patches on 5th, much smaller spinal areas on 6th and 7th, and a narrow bar on 8th urite.

Antennae short, normally 6-segmented or sometimes 5-segmented. Antennal flagellum (joints III-VI) 0.30-0.40 of body length; III joint usually shorter (0.62-0.96) than VI; IV joint slightly shorter than V; processus terminalis 0.65-0.80 of the basal part of joint VI. Antennal hairs very short, particularly those on III and IV joints, which are 6-11 μ long or 0.40-0.60 of the basal articular diameter of III joint. Small secondary rhinaria are present on III (1-3 in number and mostly placed on the distal part of joint) and frequently also on the IV joint (0-2 in number).

Rostrum reaching the base of 3rd coxae. Ultimate rostral joint acute-conically or nearly stiletto-shaped, 2.50-2.80 times longer than its basal diameter and 1.10-1.25 times the II joint of hind tarsus (including its distal unguiferous); bearing two supplementary long (30-42 μ) hairs in addition to the three primary distal pairs.

Legs with relatively short femurs and tibiae; crural hairs all quite short and

sometimes rather apically blunt; coxal hairs on middle and hind legs up to 20-32 μ long or 0.40-0.68 of the diameter of trochantro-femoral suture; ventro-trochanteral hair (12) 15-23 μ and 0.32-0.54 of the same suture; dorsal femoral hairs shorter (8-14 μ) and outer tibial hairs (12-16 μ) in the middle portion about half (0.40-0.52) the tibial diameter at the same point. First tarsal chetotaxy 3:3:2, as usual in the group.

Siphunculi very short (0.055-0.078 mm or about 0.038-0.060 of body length) and trumpet-like, with a large sclerified base (ratio length/base 0.60-0.90) and a distinctive apical flange; they are longer (1.10-1.60) than the second antennal joint.

Cauda sub-triangular, shorter than wide at base, showing the typical form occuring in the genus, carring about 15-18 short and curved hairs, which are quite difficult to count exactly.

Genital plate with usually 2 discal setae and 4-7 postero-marginal ones, which are (18) 20-30 μ long.

Alate viviparous female (described from 2 specimens). Body length 1.30-1.40 mm. Colour when alive: head and thorax blackish, abdomen dark-green as in the apterous morph; antennae entirely blackish; wings hyaline with brownish veins. Antennal flagellum 0.40-0.50 of body length; III joint of about the same length as VI and bearing 6-10 secondary rhinaria rather sparse along the ventral side, but not alined in a single row; IV and V joints bearing, respectively, 2-3 and 0-2 secondary rhinaria. Cuticular reticulation still evident on head capsule and on abdomen, even if less marked than in the apterous morph. Abdominal sclerifications similar to those of apterous, but usually reduced and with trace of small marginal patches on 2^{nd}-4^{th} urites.

Other morphological features similar to those of apterous viviparous females.

TYPES. The *holotype* is the apterous viviparous female n. 1 of the biometric Table 1, collected on *Artemisia variabilis* Tenore at Gallina, Reggio Calabria (Italy), 09.XII.1987; it is deposited in the collection of the Institute of Agricultural Entomology, University of Catania (I). *Paratypes* are 11 apterae and 2 alate viviparous females, same data as holotype; they are in the author's collection and in the collections of the Natural History Museum, Department of Entomology - London (Dr R.L. Blackman) and of Prof. J.M. Nieto Nafria, Departamento de Biologia, University of León-Spain.

TAXONOMY. The generic name *Absinthaphis* was originally used by Paik (1972) for the species *A. koraiensis* Paik; subsequently, Remaudière (in Starý & Remaudière, 1973) gave it subgeneric status into the genus *Protaphis* Börner, giving a concise description of its morphological features. Eastop & Hille Ris Lambers

Table 1 - Absinthaphis brutii *sp.n.* - *Biometric data for apterous (ns. 1-8) and alate (ns. 9-10) viviparous females.*

No.	Body	Ant. flag.	Antennal joints				A.r.j.	II h.t.	Siph.	Cau.	Hair length maxima						Sec. rhin.		
			III	IV	V	VI					Frons	III/IV	Troc.	3 t.	8 t.	Stern.	III	IV	V
1	1.48	0.49	150	100	90	90+70	125	110	78	~78	15	8	16	16	16	20	1/2	1/1	0/0
2	1.24	0.48	130	88	94	94+75	125	110	62	94	16	8	12?	12	18	20	1/1	1/0	0/0
3	1.55	0.55	140	110	120	110+70	125	110	78	94	12	8	18	10	14	21	2/2	1/1	0/0
4	1.24	0.50	140	94	97	100+70	125	106	76	~76	12	8	18	14	16	28	0/1	1/1	0/0
5	1.50	0.40	140	94	94+70*		125	110	62	~84	14	9	15	11	14	23	1/1	0/1	0/0
6	1.44	0.53	140	94	110	110+78	125	105	55	~78	12	10	23	15	16	28	1/2	1/1	0/0
7	1.55	0.56	160	110	100	110+78	132	114	78	~78	14	8	23	13	18	23	2/2	1/1	0/0
8	1.35	0.47	120	80	100	98+70	125	110	78	~78	13	7	19	12	16	23	0/0	1/0	0/0
9	1.40	0.59	200	110	96	110+75	125	113	50	64	12	10	14	14	16	20	8/8	3/2	0/2
10	~1,30	0.65	210	110	120	120+88	126	110	53	68	12	8	20	17	16	19	6/10	2/3	1/1

Holotype (no. 1) and paratypes (ns. 2-10); collected on *Artemisia variabilis*, Gallina, Reggio Calabria (Italy), 9.XII.1987
Body length and length of antennal flagellum in mm; all other measurements are in μ.
* 5-segmented antenna.

Abbreviations: Ant. Flag. = antennal flagellum; III-VI = antennal joints; A.r.j. = apical rostral joint; II h.t. = second hind tarsomer; Siph. = siphunculus; Cau. = cauda; Troc. = ventro-trocanteral hair of hind legs; 3 t. and 8 t. = third and eighth urotergites; Stern. = hairs on second-fifth urosternites; Sec. Rhin. = secondary rhinaria.

Table 2 - Absinthaphis georgii *(Mier & Nieto) - Biometric data for apterous (ns. 1-2) and alate (ns. 3-4) viviparous females.*

No.	Body	Ant. flag.	Antennal joints				A.r.j.	II h.t.	Siph.	Cau.	Hair length maxima						Sec. rhin.		
			III	IV	V	VI					Frons	III/IV	Troc.	3 t.	8 t.	Stern.	III	IV	V
1	1.10	0.38	160	78	86+58*		109	94	40	70	8	5	10	8	12	12	1/1	0/0	0/0
2	1.37	0.45	180	94	110+63*		117	102	48	102	7	6	12	10	12	14	1/0	0/0	0/0
3	1.34	0.66	220	110	120	130+83	116	116	47	90	6	6	11	10	15	16	11/8	3/4	2/1
4	1.34	0.59	190	95	110	120+70	109	114	47	86	5	5	8	12	13	14	9/8	3/3	0/0

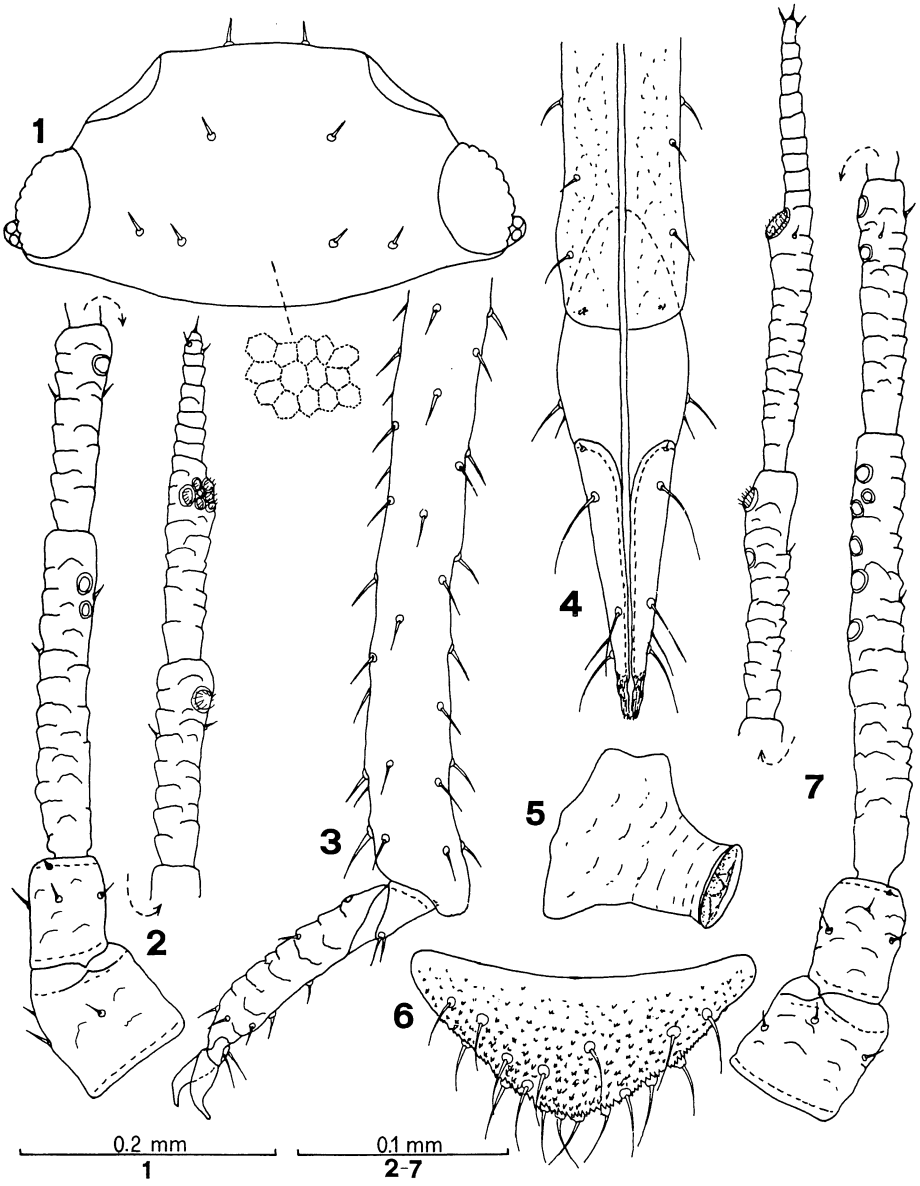
Collecting data: *Artemisia campestris* ssp. *glutinosa*, Madrid, loc. Aranjuez, Laguna de Ontigola (Spain), 6.VI.1985 (paratypes, Nieto & Mier leg.).
* 5-segmented antenna.

Table 3 - Absinthaphis cinae *(Nevsky) - Biometric data for apterous (ns. 1-2) and alate (ns. 3-4) viviparous females.*

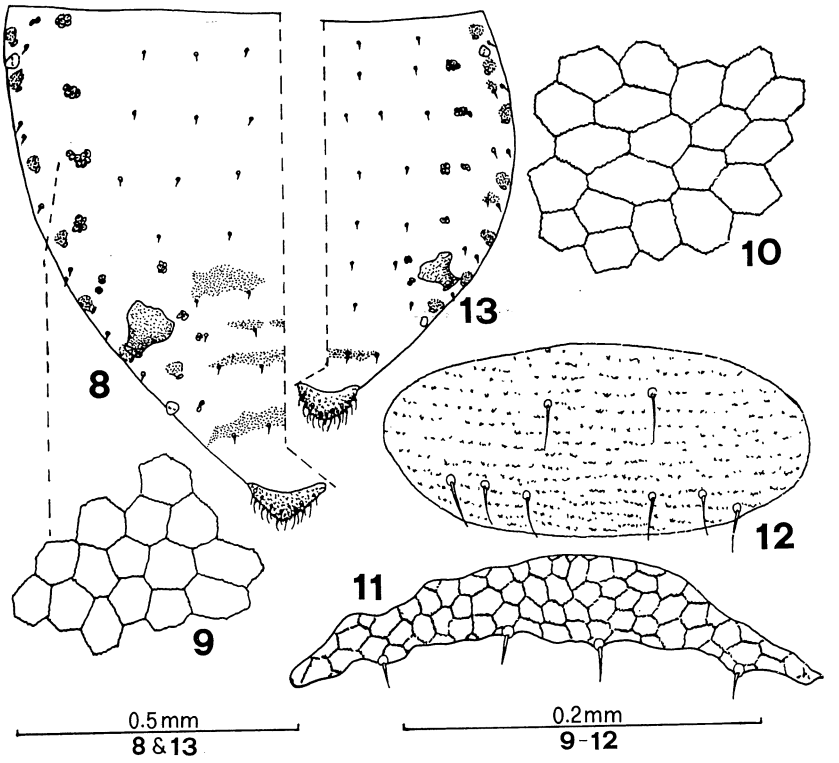
No.	Body	Ant. flag.	Antennal joints				A.r.j.	II h.t.	Siph.	Cau.	Hair length maxima						Sec. rhin.		
			III	IV	V	VI					Frons	III/IV	Troc.	3 t.	8 t.	Stern.	III	IV	V
1	1.70	0.56	140	110	110	120+75	128	116	78	78	30	15	31	28	31	40	1/1	1/1	0/0
2	1.42	0.56	160	110	110	110+75	122	122	72	78	29	14	34	28	33	32	1/2	1/2	0/0
3	~1,27	0.60	200	100	110	110+78	124	124	62	65	24	11	28	24	30	30	12/11	3/4	2/3
4	1.34	0.62	200	110	110	120+78	122	125	62	~80	19	10	34	20	30	32	11/11	4/5	1/1

Collecting data: *Artemisia dracunculus*, Alvaz (Iran), 17.IV.1978 (specimens in the British Museum collect.).

Abbreviations: Ant. Flag. = antennal flagellum; III-VI = antennal joints; A.r.j. = apical rostral joint; II h.t. = second hind tarsomer; Siph. = siphunculus; Cau. = cauda; Troc. = ventro-trocanteral hair of hind legs; 3 t. and 8 t. = third and eighth urotergites; Stern. = hairs on second-fifth urosternites; Sec. Rhin. = secondary rhinaria.



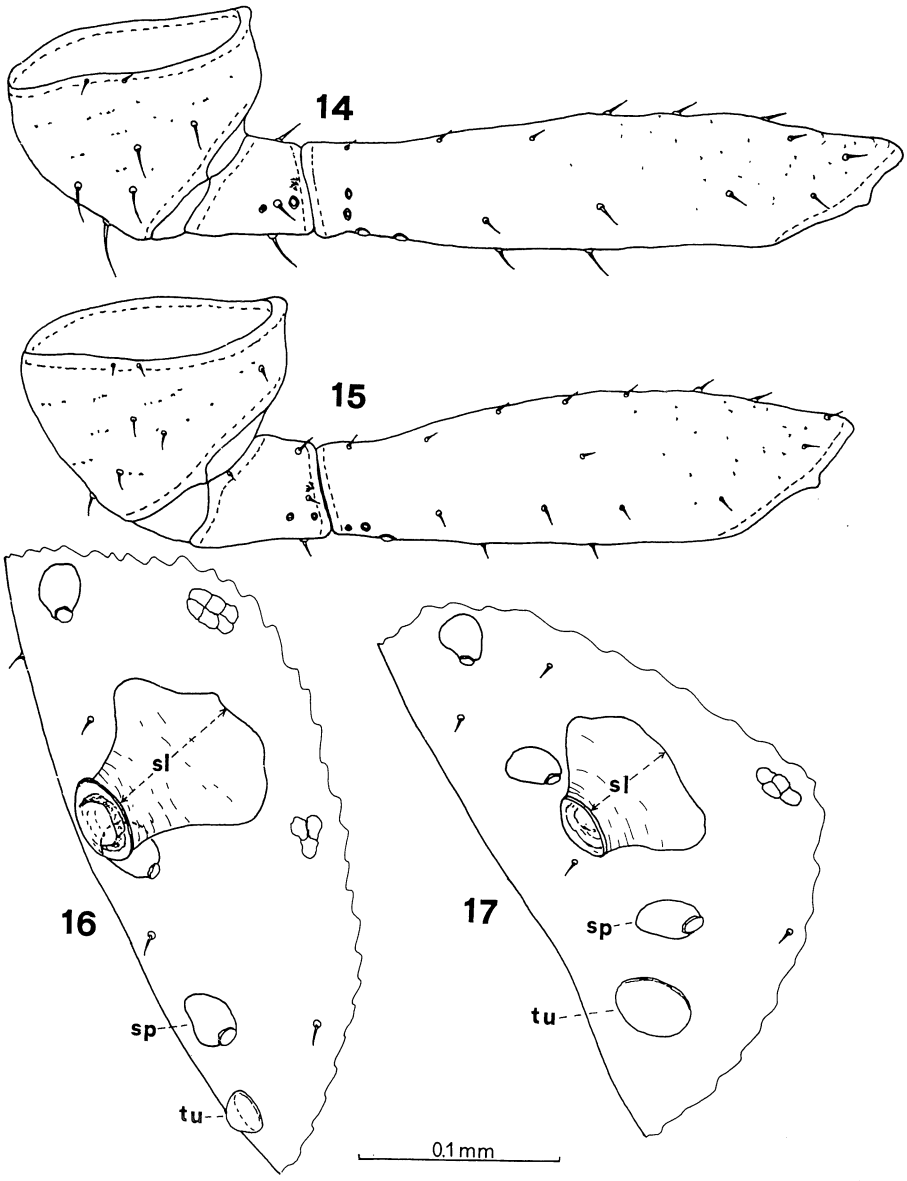
Figs. 1-7 - *Absinthaphis brutii* sp. n. - Apterous viviparous female: 1. Head; 2. Antenna; 3. Distal part of hind tibia and tarsus; 4. Distal part of rostrum; 5. Siphunculus; 6. Cauda. - Alate viviparous female: 7. Antenna.



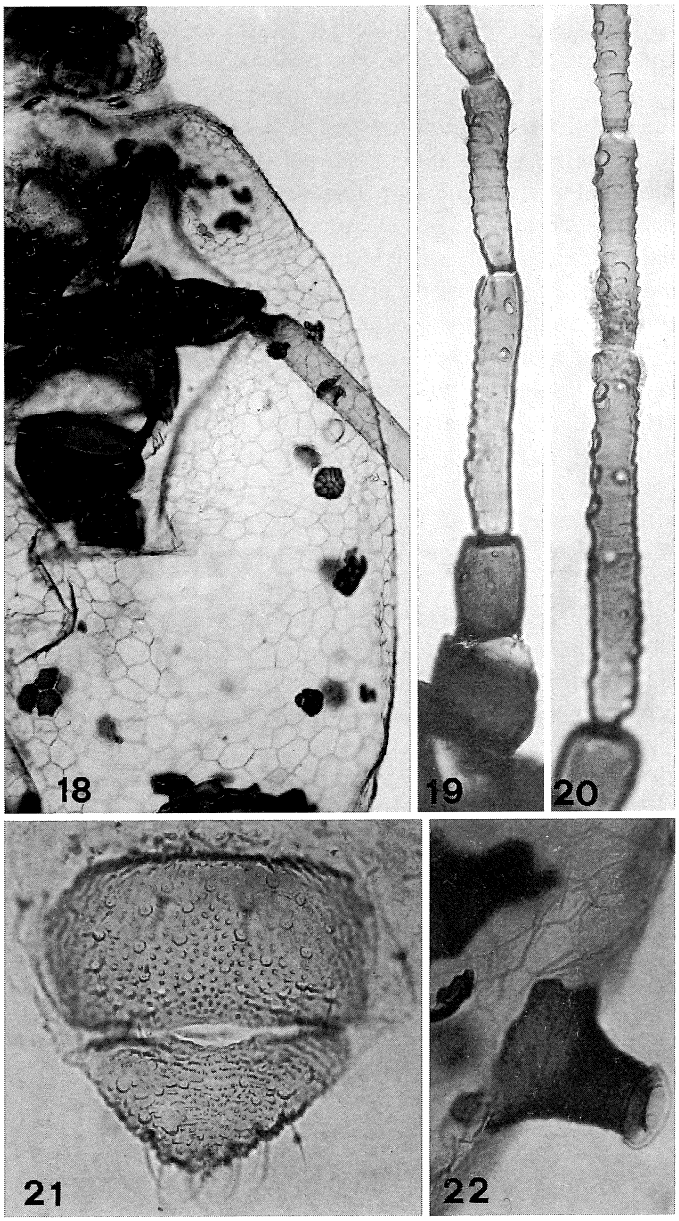
Figs. 8-13 - *Absinthaphis brutii* sp. n. - Apterous viviparous female: 8. Abdomen (left side from dorsum); 9. & 10. Cuticular sculpture at 3rd (marginal) and 5th (spinal) urotergites, respectively; 11. Eighth urotergite; 12. Genital plate. - Alate viviparous female: 13. Abdomen (right side from dorsum).

(1976) transferred the same subgenus to *Aphis* L., including in it six aphid species. More recently Mier Durante & Nieto Nafria (1991), following the taxonomical interpretation of the Survey, summarized the history of the subgenus, giving distinctive features for most of its nine species known up to date.

In the present paper *Absinthaphis* is considered as a full genus, as quoted by Eastop (1979). The new taxon, *A. brutii* sp.n., is most similar to *A. georgii* (Mier & Nieto), described from Spain on *Artemisia campestris* L. subsp. *glutinosa*. The two aphids can be separated mainly by the different length of the siphunculi, which apparently are longer in *A. brutii* than in *A. georgii*. In the former, their length in lateral view (see figs. 16 & 17) is 1.10-1.60 times the II antennal joint or 0.50-0.72 of the II hind tarsomer; while in *A. georgii* the ratios are usually 0.80-1.10 (up to 1.30 in about 20% of measured specimens) and 0.40-0.60, re-



Figs. 14-17 - *Absinthaphis brutii* sp. n. - Apterous viviparous female: 14. Coxo-femur of hind leg; 16. Abdomen, postero-marginal part. - *A. georgii* (Mier & Nieto), apterous viviparous female: 15. Coxo-femur of hind leg; 17. Abdomen, postero-marginal part.
sl = siphuncular length; sp = stigmal plate; tu = marginal tubercle of 7th urite.



Figs. 18-22 - *Absinthaphis brutii* sp. n. - Apterous viviparous female: 18. Cuticular sculpture of the body; 19. Antenna (from 1st joint to basal part of 5th joint); 21. Cauda and caudal plate; 22. Siphunculus. - Alate viviparous female: 20. Antenna (from 2nd joint to part of 5th joint).

spectively. Also, the ratio of siphuncular length to their maximum basal diameter is 0.58-0.88 and 0.46-0.60 in the two species, respectively. Other differences are found in the length of the body hairs and size of the abdominal marginal tubercles. Hairs in *A. brutii* appears to be slightly longer (at least on frons, coxae and trochanter, tibiae and urosternites) than in *A. georgii*: for example, the ratio trochanteral ventral hair/diameter of trochantro-femoral suture on hind legs is 0.30-0.50 and 0.18-0.30, respectively.

Marginal tubercles on 1st and 7th urites have a basal diameter usually not less than the maximum diameter of the stigmal plate on the same segment in *A. georgii*, while they are smaller in *A. brutii*.

Another rather similar species is *A. cinae* (Nevsky), which may be separated from *A. brutii* by the longer body hairs as well as the antennal and crural hairs (the ratio frontal hairs/basal articular diameter of III antennal joint is 1.55-2.10 in *A. cinae* and 0.75-1.10 in *A. brutii*); also there are no dorsal abdominal sclerifications (other than intersegmental muscle sclerites) in *A. cinae*, where the ratio last rostral segment/II hind tarsomer is 0.98-1.10. In a similar way *A. brutii* differs from *A. lambersi* Tashev (1962), the latter being probably a synonym of *A. cinae*.

Other species of *Absinthaphis* (*hirsuta* Nev., *alba* Rem. & Dav., *judenkoi* Szel., *hortobagyi* Szel., *pannonica* Szel.) can be easier separated from *A. brutii*, having more distinctive morphological features, as quoted in the literature (Nevsky, 1929; Ivanovskaja, 1960; Remaudière & Davatchi, 1959; Szelegiewicz, 1959, 1978).

ECOLOGY AND DIFFUSION. The new aphid species was collected on upper parts of stems and leaves of *Artemisia variabilis* Ten., where apparently the colonies were ant attended. Leaves were infested with clustered colonies, being also curled and twisted. Sooty mould was observed on the infested plant. The sample, collected in December, was mainly composed of immatures, with some viviparous morphs; therefore, the aphid is likely anholocyclic. At present, this aphid is only known for a Southern region (Calabria) of the Italian peninsula.

DERIVATIO NOMINIS. The new aphid species is named after an ancient denomination of the southern area of the Italian region Calabria.

ACKNOWLEDGMENTS

The author would like to thank Dr. Roger L. Blackman (The Natural History Museum - Department of Entomology, London) for the loan of some slides of *Absinthaphis* species. Many thanks are also due to Prof. Juan M. Nieto Nafria who supplied paratypes of *A. georgii* and some biometric data of the same species.

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Ricevuto il 20 novembre 1996; pubblicato il 30 dicembre 1996.