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S. BARBAGALLO, I. PATTI

A new genus and species of Myzocallidine aphid living on *Quercus trojana* in Italy (Homoptera Aphididae)

Abstract - *Apulicallis trojanae*, gen. n., sp. n., (Homoptera Aphididae) is described from Italy, where it lives on the Macedonian Oak, *Quercus trojana* Webb. Accounts are given of its morphology (alate viviparous female, fundatrix, alatoid nymph, embryo, male and ovipara), taxonomy, distribution and life cycle.

Riassunto - *Descrizione di un nuovo afide Mizocallidino vivente in Italia su* Quercus trojana.

Viene descritta una nuova specie di afide della sottofamiglia *Phyllaphidinae*, le cui caratteristiche morfologiche hanno suggerito l'istituzione di un nuovo genere; questo si colloca tassonomicamente tra i generi *Myzocallis* Pass. e *Tuberculatus* Mordv., evidenziando con essi chiare affinità filogenetiche. È illustrata la morfologia delle piú comuni forme del ciclo biologico (fondatrice, fondatrigenia, ninfa di IV età, embrione, maschio e femmina anfigonica), la posizione sistematica, la diffusione e il comportamento biologico dell'insetto.

Key words: Homoptera Aphididae; *Apulicallis trojanae* gen. n., sp. n.; *Quercus trojana*; Italy.

A new aphid species, belonging to a new genus of Myzocallidine, was recently discovered on the Macedonian Oak, *Quercus trojana* Webb, in Apulia Region, South Eastern side of the Italian peninsula. The interesting new species, which appears to predominate among the aphid species colonizing this oak in that region, looks very similar to a *Myzocallis* Pass. in macroscopic aspect and lives scattered on the underside of leaves. The generic name is derived from the region of origin of the material.

APULICALLIS gen. n.

Alate vivipara. Head with smooth cuticle and a well developed frontal tubercle, under which the median ocellus arises; the latter being, therefore, not visible from above. No epicranial suture present. Head chaetotaxy as in *Myzocallis*: two pairs of anterior discal and of posterior discal hairs, short and rather blunt at their apex. Antennae 6-jointed, just shorter than body; their segments gradually spinulose from the apical part of III towards VI. Antennal hairs very short (not exceeding 0.5-0.6 of the basal articular diameter of III) on

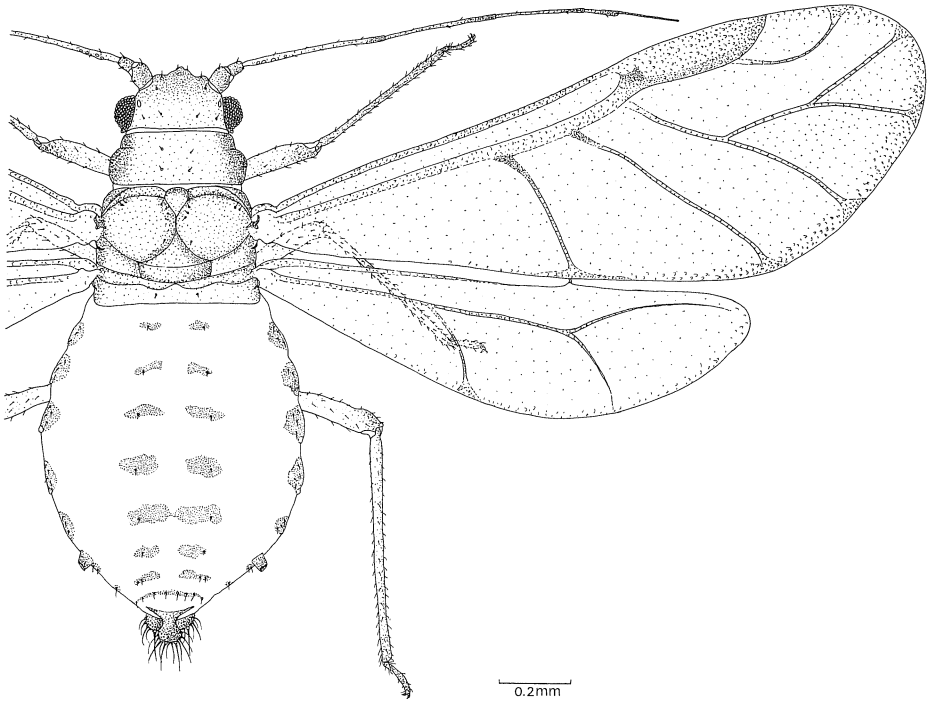


Fig. 1 - *Apulicallis trojanae*, gen. n., sp. n., alate vivipara, paratype.

all segments; three in number on the I article. Processus terminalis longer than base of VI; secondary rhinaria nude and in a single line on the basal part of joint III; primary rhinaria regularly ciliated. Rostrum short, not reaching the mesocoxae, with basal arch sclerotisation of II joint present; last segment rather blunt apically with few (4-7) supplementary hairs. Pronotum with two pairs of short spinal hairs and a single marginal one for each side; pronotum lateral lobes with very few spinules and usually with few (1-3) small papillae.

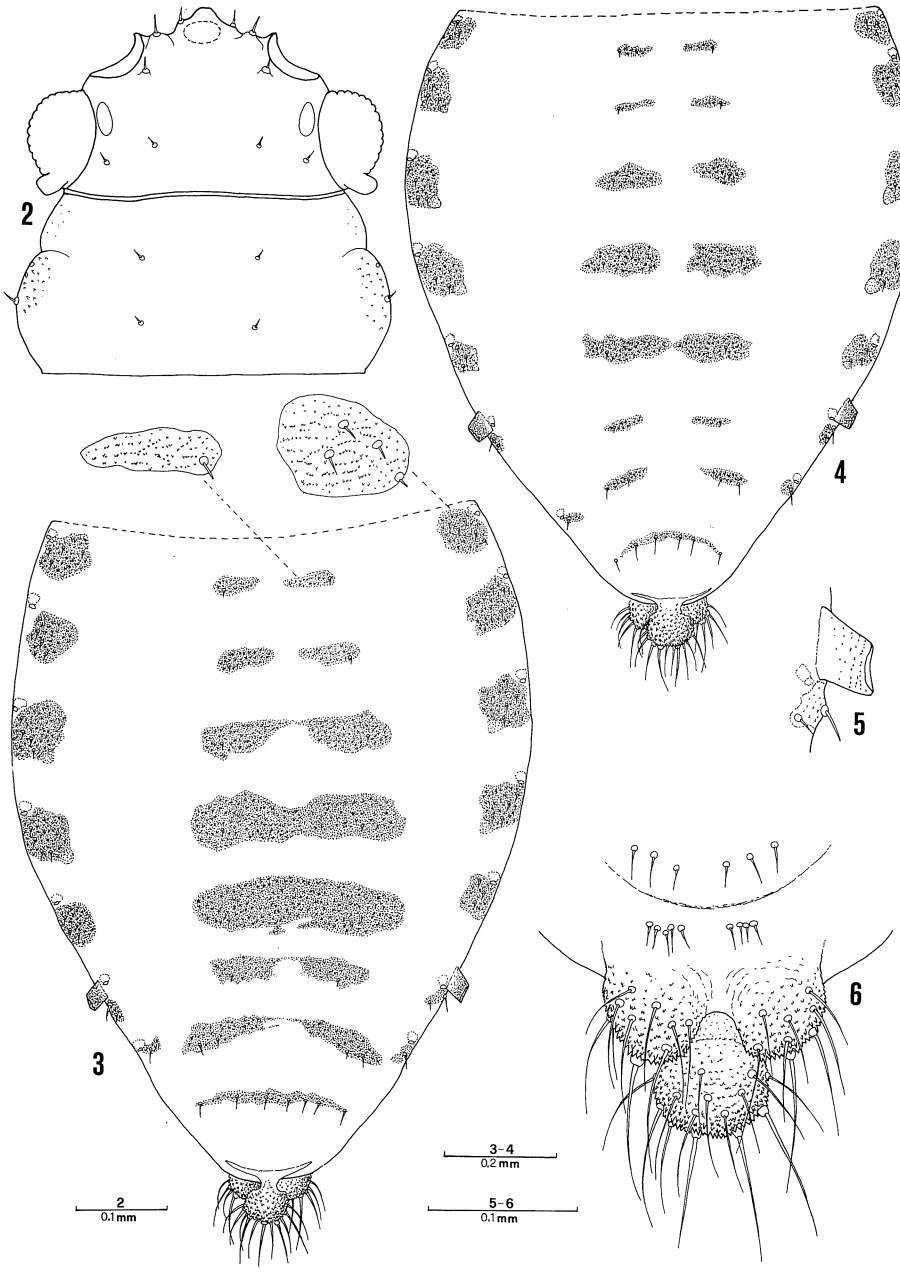
Mesonotum with smooth lobes. Wings with normal, rather smooth membrane and mostly pale; Rs weakened, compared with other veins, but complete. Legs normal; fore coxae slightly enlarged, compared with the other two pairs; outer distal part of femora spinulose; spinulosity of tibiae and tarsi as usual in *Myzocallis*. Spur-like distal setae (rastral organ) evident on front tibiae and much more reduced on the other two pairs. Empodial hairs flabellatae and slightly sigmoid in shape. Abdomen with small marginal, mammiform elevations on the 2nd-5th tergites (the pairs on 3rd-4th tergites being the most developed), with hairs placed basically; no spinal tubercles present. Abdominal chaetotaxy consisting of a single pair of spinal hairs for each of the first six tergites; two pairs of spinal hairs on 7th and a transverse row of 6-8 hairs on the 8th tergite; marginal hairs in clusters of 3-5 on the first five tergites, a couple on the 6th and a single one on 7th tergite; pleural setae not present. Spinal sclerites usually present in distinctive small pairs from the 1st to 7th tergites and in a transverse narrow strip on the 8th; nevertheless, those on 3rd to 5th tergites are sometimes more or less coalescent, forming a transverse spinal patch on each of these tergites. Marginal sclerotisations present on the first five tergites; reduced, but still present, also on 6th and 7th tergites. Siphunculi truncate, nearly smooth or at most with a few rows of very fine spinules, and not flared distally. Cauda knobbed and anal plate bilobed.

All viviparae alate.

Immature stages. Body chaetotaxy with a normal «protopattern» in the first stage. The «mesopattern» (*sensu* Richards, 1965) of the following stages (II-IV) still consists of a single pair (except prothorax, with the usual two pairs) of spinal setae up to the 6th tergite; 7th tergite with two spinals on each side (although in the 2nd stage still a single seta may be present). Marginal clusters of 3-4 setae present on meso-metathorax and each of the first five abdominal segments. Pleural setae not present. Dorsal peripheral hairs on head and marginal hairs on thorax and abdomen all very thick, rod-like and finely spinulose; inner setae on head and spinal hairs from prothorax to 6th tergite spatulate or subcapitate and inconspicuous; those on 7th, as well as the hairs on 8th tergite, well developed and rod-like or subcapitate apically.

Male. Alate, with a series of transverse spinal patches on abdomen, as in *Myzocallis*; marginal and ventral sclerotisations also present on all tergites. Chaetotaxy as in the viviparous female, with inconspicuous dorsal hairs. Secondary rhinaria present on antennal joints III-V and basal part of VI, scattered along all their length.

Oviparous female. Chaetotaxy similar to the nymphs, with conspicuous rod-like marginal body hairs, but with short spinal hairs from prothorax to



Figs. 2-6 - *Apulicallis trojanae*, gen. n., sp. n., alate vivipara: 2. Head and pronotum; 3. and 4. Abdomen, with two different degrees of sclerotisation; 5. Siphunculus and marginal setae of sixth tergite; 6. Cauda, anal and part of genital plate (ventral view).

the 6th abdominal tergite inclusive. Secondary rhinaria and subsiphuncular wax gland fields not present.

Type species. *Apulicallis trojanae* sp. n.

Apulicallis trojanae sp. n.

Alate vivipara. A rather small aphid (body length 1.30-2.25 mm) lemon-yellow in colour, with head and thorax slightly brown. Antennae mostly pale, with the first two joints, distal part of III to V and most of VI brown pigmented. Legs rather yellowish with browned tarsi. Abdomen with paired spinal and marginal brown spots; siphunculi, cauda and anal plate brownish.

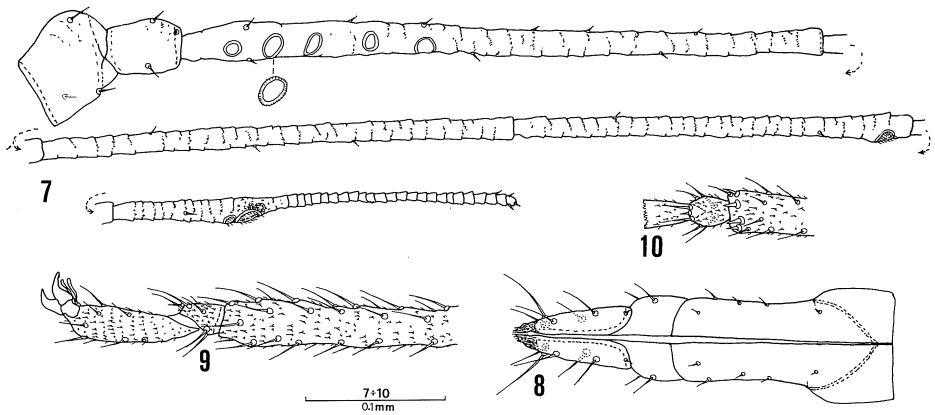
Head with well developed frontal prominence and just lower antennal tubercles. Frontal hairs rather acute, 10-20 μ long and inserted laterally on the frontal process; anterior and posterior discals all similar in length, 8-15 μ and distinctly shorter than the diameter of the lateral ocelli. Antennal flagellum shorter (0.65-0.82) than body; III segment with a row of 2-7 (but most often 3-6) roundish secondary rhinaria, nude and usually confined to the basal half (range of variation 0.28-0.60); VI segment with processus terminalis longer (1.46-1.92) than the basal part. Antennal hairs all inconspicuous, similar in length and rather acute; those on III segment are maximally 6-12 μ long, or 0.43-0.62 of the basal articular diameter of the same segment.

Rostrum short, just reaching behind the front coxae; its last segment is cone-shaped, rather blunt, normally just shorter (0.81-1.04) than the II hind tarsomer, and with 4-7 supplementary setae.

Pronotum slightly brown marginally and with inconspicuous hairs (8-14 μ on marginal lobes), as are those on the other thoracic nota. Frontal coxae and femora a little enlarged, compared to the other two pairs. Femoral hairs rather acute and short; the outer ones on hind femur maximally 0.23-0.40 of the trochantro-femoral suture. Tibial hairs also rather acute and of medium length: the inner series just longer than the outer ones and at most as long as or just longer than the median tibial width. Rastral organ composed of 3-(4) spur-like setae on the front tibiae, much less developed in middle tibiae and nearly undeveloped in the hind ones. First tarsal chaetotaxy composed of 2 dorsal and 5 ventral setae, of which the ventral medioapical one is a short sense-peg. Wings with hyaline membrane and slightly infuscated veins; a distinctive small brown spot is present, as usual in the group, at the base of pterostigma, Cu_1 and Cu_2 veins. Pterostigma slightly bordered with brown along the inner margin and about 3.5 times longer (its length being measured from the

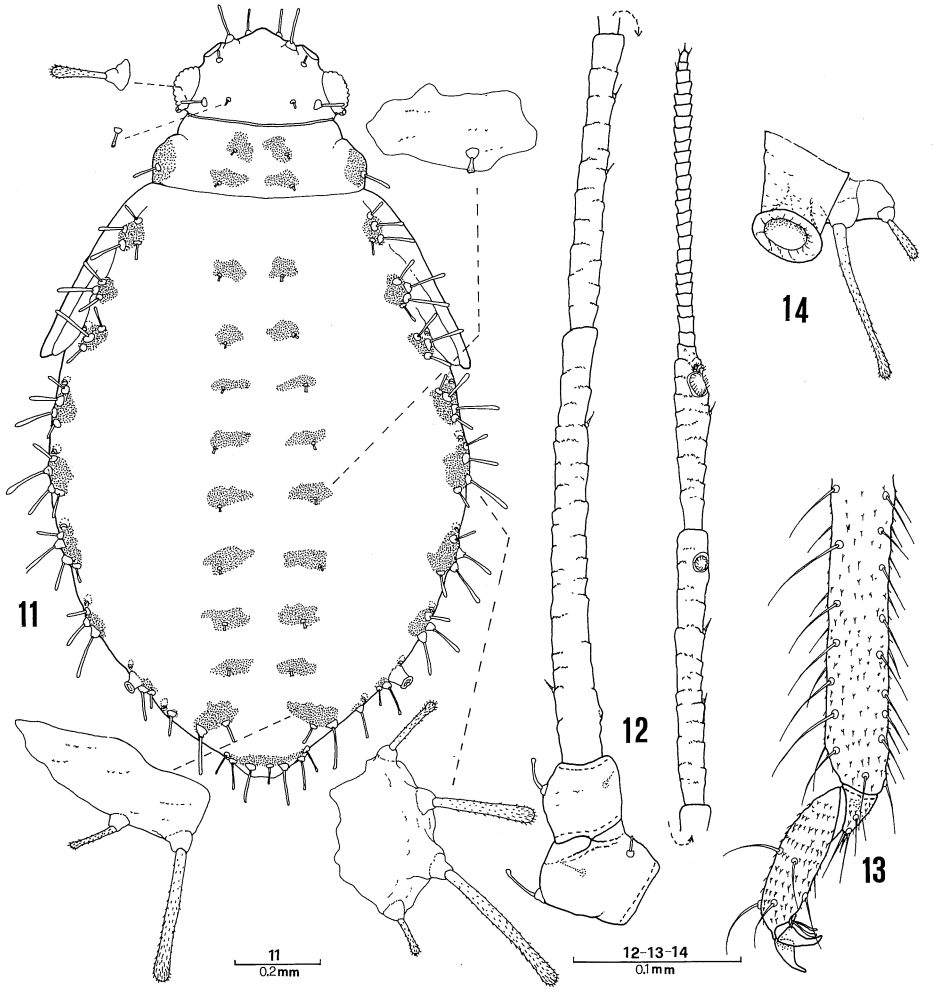
proximal margin of the brown spot) than its width. Cu_1 vein sinuate; Rs with complete base.

Abdomen with a spinal pair of roundish-ovoidal spots from the first to the seventh tergite and a narrow stripe on the 8th. These sclerotisations appear to be more evident in later generations and mostly in the sexuparae; in this case on some tergites (from the 3rd or 4th ones onward) they become more or less coalescent along the middle line and may resemble the shape (reversely oriented) of the spinal patches found in *Hoplocallis*. Marginal roundish sclerotisations are present on the first five tergites; much smaller spots are also present on the 6th and 7th tergites, the former close to but not distinctly fused with the siphuncular base. Small marginal processes arise from the second to the fifth tergites, of which those on 3rd and 4th tergites are the most developed.



Figs. 7-10 - *Apulicallis trojanae*, gen. n., sp. n., alate vivipara: 7. Antenna; 8. Rostrum; 9. Distal part of tibia and tarsus of hind leg; 10. Apical part of tibia and first tarsomer of fore leg (ventral view).

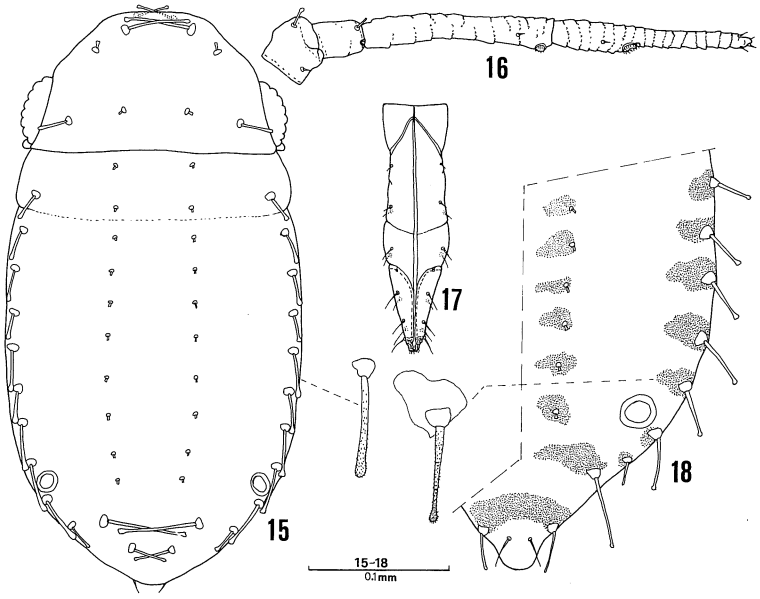
Inconspicuous (6-12 μ), single pairs of spinal hairs are present on each of the 1st-6th tergites; 7th tergite with two pairs of spinal hairs (of which the longer is 9-16 μ) and 8th tergite with a row of 6-8 hairs. Small marginal hairs are present, in group of 3-4 on each of the first five tergites, in pairs on the 6th and single one on the 7th. Siphunculi more or less pigmented, small, not longer than the length of knobbed part of cauda, or 0.36-0.52 of the second hind tarsomer. Cauda with knobbed part shorter (0.64-0.85) than its width and bearing 11-15 setae. Anal plate pigmented like the cauda, deeply indented, and with 7-13 setae for each lobe. Genital plate with 4-8 discal setae and 6-10 marginal ones. Gonochaetae in two groups, with usually 4-5 (range of variations 3-7) setae each.



Figs. 11-14 - *Apulicallis trojanae*, gen. n., sp. n., fourth instar nymph: 11. Body (antennae and legs are omitted), with details of some dorsal sclerites and setae; 12. Antenna; 13. Distal part of hind tibia and tarsus; 14. Siphunculus and marginal setae of sixth tergite.

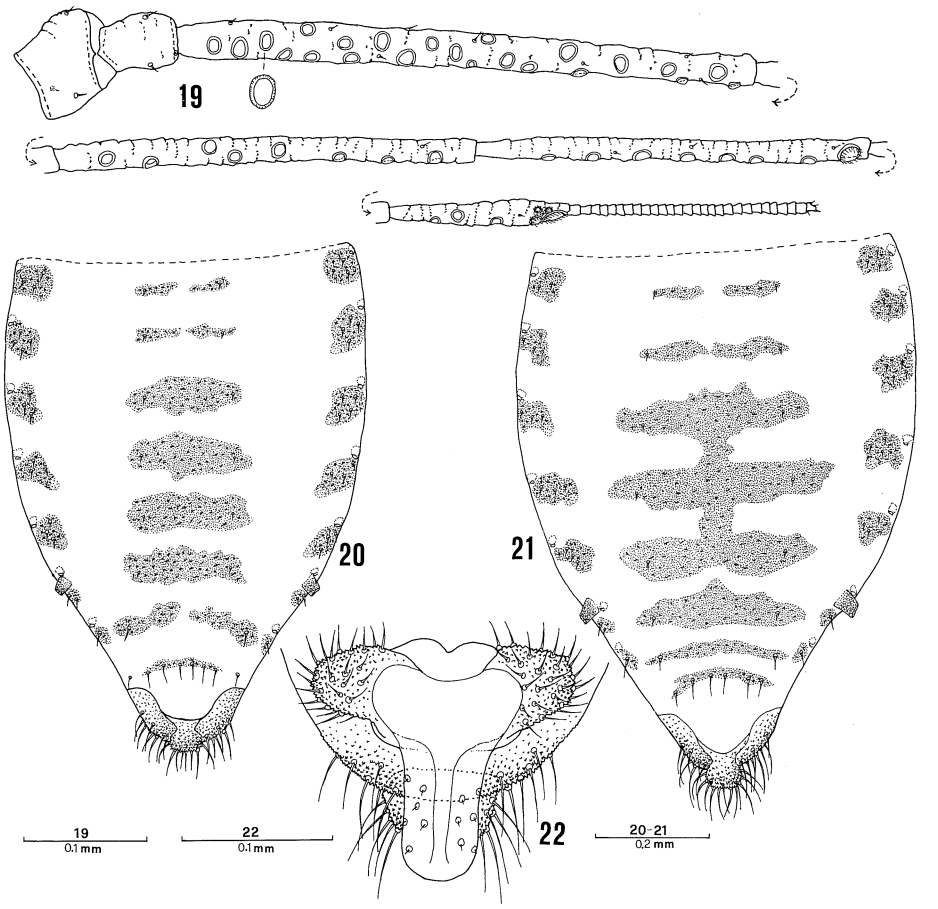
Fundatrix. Very much like to the following generations of virginogeniae, from which it is hardly distinguishable. The greater body size (2.20-2.35 mm) directly affects all the other morphological features. The ratio between the length of antennal flagellum/body length ($=0.61 \div 0.69$ in the seven specimens

seen), is apparently the best way to separate the fundatrix from the other virginogeniae (where the range of variation is $0.65 \div 0.81$, with $80\% \geq 0.70$ in a sample of 20 measured specimens). Ratio between III ant. segm./VI ant. segm. $1.36 \div 1.69$ (with 16% of cases ≤ 1.60), against $1.27 \div 1.65$ (with 15% of cases ≥ 1.60) in the following generations of virginogeniae. For further data see tab. 1, specimens n° 11-12.



Figs. 15-18 - *Apulicallis trojanae*, gen. n., sp. n., Embryo and first instar nymph: 15. Body of embryo; 16. Antenna; 17. Rostrum; 18. Abdomen (half size) of 1st instar nymph.

Alatoid nymph. Body length 1.30-1.75 mm (up to 2.30 mm in nymphs of fundatrix). Colour in life pale yellow with paired spinal and marginal brown spots on each of thoracic and abdominal segments; antennae pale, with distal part of III, IV, V and most of VI segment tinged with brown; legs mostly pale, with infuscated or brownish distal part of tarsi. Wing pads brownish. Head pale, with smooth cuticle and convex front. Dorsal sclerotisations consisting of two small pairs of spinal patches on prothorax and a single pair per segment from mesothorax to 7th tergite; a single transverse bar on 8th tergite. Lateral sclerotisations are also present on each thoracic and abdominal segment, at the base of their marginal setae. All dorsal body setae pale, of different size and shape, rounded or spatulate at their apex, but not distinctly knobbed. The



Figs. 19-22 - *Apulicallis trojanae*, gen. n., sp. n., male: 19. Antenna; 20. and 21. Abdomen, with two different degrees of sclerotisation; 22. Apical part of abdomen, with genital apparatus (ventral view).

largest rod-like setae are very finely spinulose, at least on about their distal half. Frontal (55-78 μ) and first pair of anterior discal setae stout and rod-like, the latter being 75-100 μ long and placed on small cone-elevations; second pair of anterior discals as well as inner pair of posterior discal setae much smaller, 5-20 μ long; outer posterior discal setae similar in shape and size to the frontal pair. Prothorax with two pairs of small (8-18 μ) spinals and one single, much larger (66-78 μ) and rod-like marginal seta. From mesothorax to the 6th tergite a single pair of small (8-24 μ) and spatulate spinal hairs arises from the sclerified

Table 1 - Apulicallis trojanae, *gen. n., sp. n. - Alate viviparous female and sexuales. Measurements in mm of some specimens.*

N.	Body length	Ant. flag.	Antennal segments				Secondary rhinaria				Last rostral segment	II hind tars.	Siph.	Cauda (kb. part)
			III	IV	V	VI	III	IV	V	VIb.				
1	1.59	1.28	0.41	0.29	0.26	0.12+0.20	3/4	—	—	—	0.07	0.09	0.03	0.05
2	1.51	1.20	0.38	0.28	0.25	0.10+0.19	4/3	—	—	—	0.07	0.08	0.03	0.05
3	1.89	1.31	0.44	0.32	0.27	0.11+0.17	5/4	—	—	—	0.08	0.09	0.03	0.05
4	1.68	1.26	0.42	0.30	0.25	0.11+0.18	3/4	—	—	—	0.07	0.09	0.03	0.05
5	2.10	1.51	0.52	0.36	0.30	0.12+0.21	5/6	—	—	—	0.10	0.11	0.05	0.06
6	1.60	1.33	0.44	0.33	0.24	0.11+0.21	5/4	—	—	—	0.09	0.09	0.04	0.05
7	1.44	1.14	0.38	0.25	0.22	0.11+0.18	3/4	—	—	—	0.08	0.08	0.04	0.05
8	1.52	1.22	0.41	0.28	0.23	0.11+0.19	3/3	—	—	—	0.07	0.08	0.04	0.05
9	1.29	1.05	0.34	0.25	0.19	0.10+0.17	3/3	—	—	—	0.07	0.08	0.03	0.05
10	2.22	1.61	0.57	0.35	0.34	0.14+0.21	5/5	—	—	—	0.09	0.10	0.04	0.06
11	2.35	1.52	0.54	0.34	0.31	0.13+0.20	5/6	—	—	—	0.11	0.11	0.05	0.06
12	2.27	1.39	0.49	0.35	0.26	0.12+0.17	4/6	—	—	—	0.10	0.10	0.05	0.06
13	1.75	1.45	0.48	0.32	0.30	0.14+0.21	24/24	9/8	7/7	5/2	0.09	0.10	0.03	0.05
14	1.67	1.42	0.47	0.32	0.29	0.13+0.21	21/26	9/7	9/5	4/3	0.09	0.10	0.03	0.05
15	1.85	1.54	0.54	0.36	0.32	0.14+0.18	19/24	7/7	7/6	3/3	0.08	0.10	0.04	0.06
16	1.80	1.51	0.51	0.35	0.32	0.13+0.20	22/21	9/8	8/9	5/3	0.08	0.09	0.03	0.05
17	1.75	1.51	0.52	0.38	0.31	0.12+0.18	26/21	9/9	7/8	2/1	0.08	0.09	0.04	0.05
18	1.85	0.86	0.23	0.18	0.19	0.11+0.15	—	—	—	—	0.09	0.10	0.05	0.06
19	1.76	0.88	0.24	0.18	0.17	0.11+0.18	—	—	—	—	0.09	0.09	0.04	0.05
20	1.54	0.84	0.23	0.18	0.17	0.11+0.15	—	—	—	—	0.09	0.10	0.04	0.05
21	1.39	0.80	0.21	0.18	0.15	0.10+0.16	—	—	—	—	0.08	0.09	0.04	0.05
22	1.78	0.83	0.21	0.17	0.17	0.10+0.18	—	—	—	—	0.09	0.10	0.04	0.05

Ns. 1-12 alate viviparous females; 13-17 males; 18-22 oviparous females. All specimens are from *Quercus trojana*.
No. 1, Holotype, Martina Franca (TA), 2.XI.90. Ns. 2-22, Paratypes: 2-4, Crispiano (TA), 2.XI.90; 5, id., 4.V.91; 6-7, Martina Franca (TA), 4.VI.91; 8, Crispiano (TA), 22.IX.91; 9, Martina Franca (TA), 24.IX.91; 10, id., 16.XI.91; 11-12, (*fundatrices*), Alberobello (BA), 4.V.91; 13-22 Crispiano (TA), 16.XI.91.

patches. Seventh tergite with two pairs (exceptionally with a single seta on one side) of rod-like spinal hair of different size (inner seta 23-60 μ; outer seta 85-110 μ). Eighth tergite with a transverse row of 5-7 setae, placed on the sclerotised bar. Marginal, conspicuous, rod-like setae (maximally 75-110 μ long), are present, in clusters of 3-4 hairs (rarely up to 5) for each group, from mesothorax to fifth abdominal segment. Sixth tergite usually with two (seldom only one, at least on one side) setae of different length, one being much smaller than the other. Single marginal setae on the 7th tergite. Pleural hairs not present. Antennae distinctly shorter than body; antennal flagellum 0.50-0.65 (about 0.4 in nymphs of fundatrix) of the body length. Antennal segment I and II each with a stout, subcapitate seta (20-35 μ) on the anterior (inner) side; flagellar hairs inconspicuous: those on III have a maximum length of 5-9 μ or about 1/3-1/4 of the basal articular diameter of the some segment. Sixth antennal segment with the processus terminalis 1.40-1.88 of its basal part and usually about the same length as the V segment. Rostrum short, reaching between fore and middle coxae. Last rostral segment just shorter than or subequal to (0.87-1.02) hind tarsomer II. Legs normal, fore coxae not enlarged. Tibial hairs pointed; the longest ones (distal setae of the external rows) on hind legs 1.50-2.25 of the median tibial diameter. First tarsal chaetotaxy composed of five ventral setae. Siphunculi rather pigmented with brown, trumpet-shaped (thus, different from their shape in the alate morph) and smooth, about half the length of II hind tarsomer.

Embryo and first instar. Body chaetotaxy as the usual «protopattern» of the group, with spinal pair setae of the 7th tergite distinctly laterally shifted. Spinal setae from pronotum to 6th tergite very short (4-7 μ) and spatulate

Table 2 - Apulicallis trojanae, *gen. n., sp. n.* - *Alatoid nymph (4th instar)* - *Measurements in mm of some specimens.*

N.	Body length	Ant. flag.	Antennal segments				Last rostral segment	II hind tars.	Siph.
			III	IV	V	VI			
1	1.70	0.91	0.29	0.15	0.19	0.10+0.18	0.09	0.10	0.05
2	1.65	0.90	0.25	0.19	0.18	0.10+0.18	0.09	0.10	0.04
3	1.60	0.94	0.27	0.19	0.19	0.11+0.18	0.10	0.10	0.05
4	2.27	0.95	0.28	0.19	0.19	0.12+0.17	0.11	0.11	0.05
5	1.48	0.85	0.25	0.16	0.15	0.11+0.18	0.10	0.10	0.04
6	1.30	0.81	0.22	0.16	0.15	0.10+0.18	0.08	0.09	0.04

All paratypes from *Quercus trojana*. Ns. 1-2, Crispiano (TA), 2.XI.90; 3, Martina Franca (TA), 4.V.91; 4, Alberobello (BA), 4.V.91 (nymph of *fundatrix*); 5, Martina Franca (TA), 4.VI.91; 6, Crispiano (TA), 22.IX.91.

apically, distinctly shorter than the diameter of the siphuncular inner ring. On the other hand, spinal pair on 7th are very thick and long (48-56 μ); the pair on 8th tergite are similar, but shorter (30-37 μ). Marginal setae finely spinulose, thick and capitate apically; the abdominal series, except that on 1st tergite, at least reaching the base of the following seta, and gradually increasing in length from first to sixth tergite, whereas that on seventh is the shortest one; their length is: 21-35 μ on 1st; 32-37 μ on 3rd; 35-46 μ on 5th; 15-20 μ on 7th tergite. Antennae 4-jointed, with the following chaetotactic formula (*sensu* Quednau, 1954): 1+1, 1, 1, 1. Last rostral segment with 4 supplementary setae. Siphuncular pore (inner ring), 13-15 μ. In the first instar there are small, sclerotised spots at the base of each dorsal seta on thorax and abdomen.

Male. Alate; in general appearance more pigmented than the alate viviparous female. Antennae brownish, except the basal 2/3 part of III joint, which is pale. Body length 1.65-1.85 mm. Head with a small frontal prominence, less protruding than the median ocellus (the reverse of the condition in alate viviparae). Antennal flagellum 0.82-0.90 of body length. Number of secondary sensoria: 18-27 on III, 6-12 on IV, 6-11 on V, and 1-5 on basal part of VI antennal segment. Abdomen with narrow transverse ventral sclerotisations, segmentally arranged. Dorsum with a series of spinal, well pigmented bands, wich are smaller and sometimes subdivided into two distinct spots on the first two tergites, but usually large and compact on the 3rd-7th tergites; in a few cases a narrow fusion may be seen along the mid line in the bars of the discal area (i.e. 3rd-5th or 6th tergites inclusive). Marginal abdominal sclerotisations also well pigmented. Anal plate rounded. Other morphological characteristics very similar to those of viviparous female.

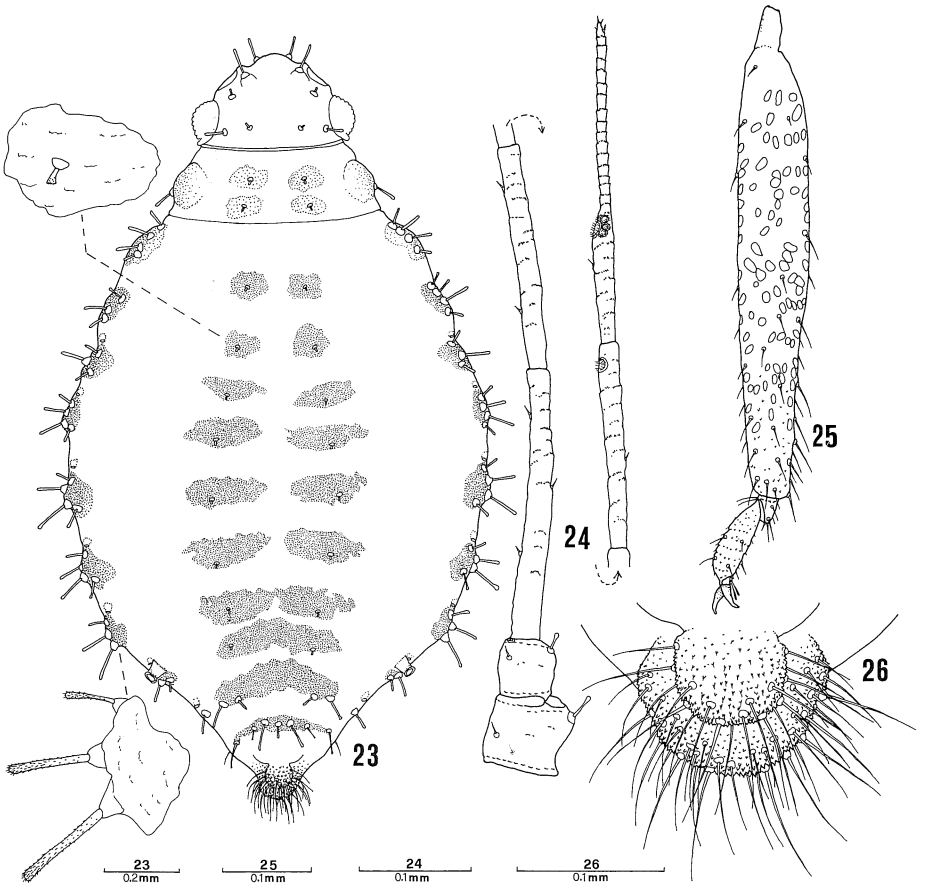
Oviparous female. Body 1.39-1.85 mm in length; lemon yellow in colour, with brownish dorsal spots. Apex of abdomen rather slightly produced posteriorly. Antennal flagellum rather short (0.45-0.58 of the body length), compared with that of the alate morphs, and all segments without secondary rhinaria. Inner antennal hairs rather long and capitate on the first two segments (18-24 μ on II segm. or 0.65-1.20 of the basal articular diameter of III); all inconspicuous and acute on the flagellar segments (those on III are 5-8 μ long, or about 1/3 of its basal articular diameter).

Dorsal body chaetotaxy similar to that of the 4th instar nymph. Hairs on front (50-64 μ), first hair of the anterior discals, and outer hair (46-50 μ) of the posterior discal pair, stout and rod-like. Marginal hairs on thorax and abdomen also rod-like and long; those on 3rd tergite are from 30-40 μ (shorter one) to 50-72 μ (the longest). Inner discals on head and spinal setae from thorax to the 6th abdominal tergite, very short and slightly spatulate apically, variable in

length from 8 to 13 μ on the first five abdominal tergites; spinals on 7th tergite paired on each side, much longer and rod-like, of which the longest (outer seta) is 58-70 μ; 8th tergite with 5-7 setae, 54-68 μ in maximum length. Pleural hairs not present.

Paired dark spinal patches are present from pronotum to 5th abdominal segment, usually coalescing into a single transverse bar from 6th tergite onward. Brown marginal spots also present, extending from thorax to the 6th tergite.

Subsiphuncular wax gland field not present. Subanal plate rounded and protruding behind the distal part of cauda, which has a higher number of setae



Figs. 23-26 - *Apulicallis trojanae*, gen. n., sp. n., oviparous female: 23. Body (antennae and legs are omitted), with details of some dorsal sclerites and setae; 24. Antenna; 25. Hind tibia and tarsus; 26. Cauda and anal plate (dorsal view).

(about 20-24) than in the other morphs. Hind tibiae distinctly incrassate (ratio total length/max. width = 5.0-6.5) and bearing numerous (about 120-170) pseudosensoria.

TYPES. *Holotype*: alate vivipara (n° 1 in tab. 1) from *Quercus trojana* Webb, collected at Martina Franca (loc. Bosco delle Pianelle), Taranto province, Italy, 2.XI.1990; in the collection of the Institute of Entomology, University of Catania-I. *Paratypes*: all collected on *Q. trojana*; they are rapresented by a total of 88 alate viviparous females including a few fundatrix, 54 viviparous alatoid nymphs, 33 males, and 25 oviparous females; collected at the following localities and dates: Martina Franca (loc. Bosco delle Pianelle and Bosco Orimini), Taranto province, 2.XI.90, 4.V.91, 24.IX.91, 15.XI.91, 16.XI.91; Crispiano, Taranto province, 2.XI.90, 4.V.91, 22.IX.91, 16.XI.91; Alberobello, Bari province, 4.V.91; Gioia del Colle, Bari province, 4.VI.91.

The paratypes are deposited in the authors' collection and in the collections of: The Natural History Museum, London-England (Dr. R. Blackman);

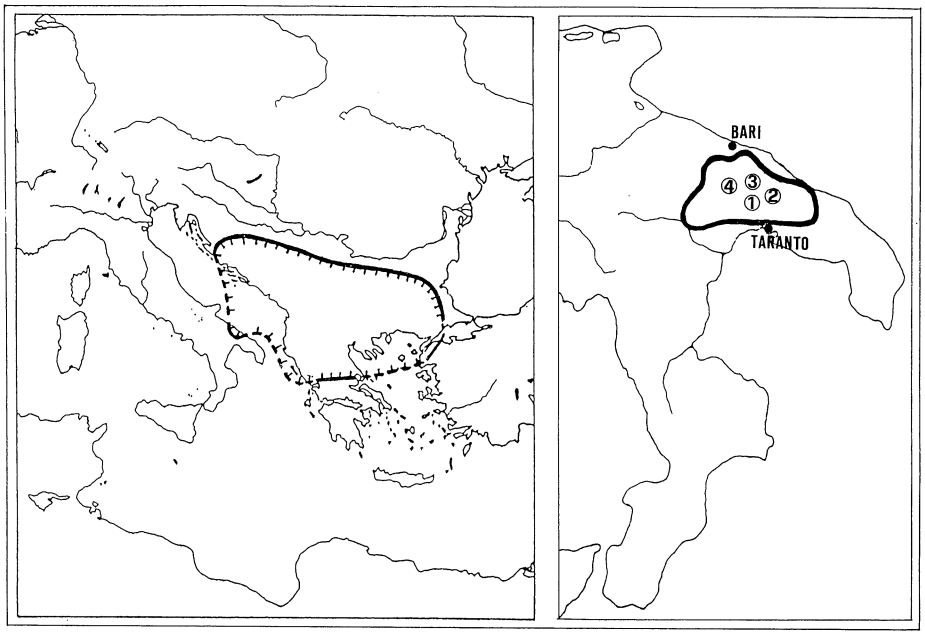


Fig. 27 - Geonemy of *Quercus trojana* (left) and its distribution in Italy (right) (after Fenaroli & Gambi, 1976). Collecting localities of *Apulicallis trojanae*: 1. Crispiano (TA); 2. Martina Franca (TA); 3. Alberobello (BA); 4. Gioia del Colle (BA).

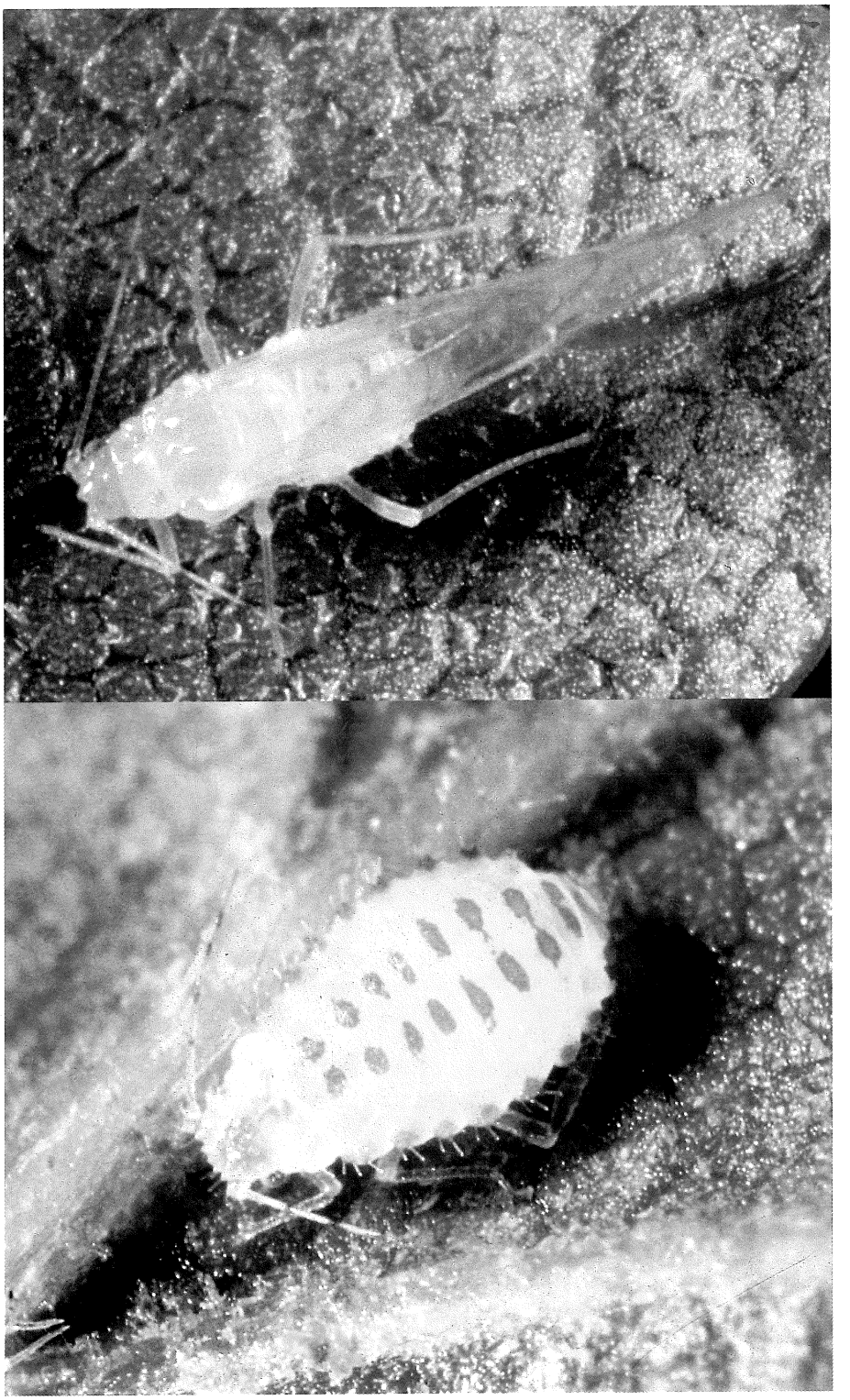


Fig. 28 - *Apulicallis trojanae*, gen. n., sp. n. - a. Alate vivipara; b. Oviparous female.

Museum National d'Histoire Naturelle, Paris-France (Prof. G. Remaudière); Dr. F.W. Quednau (Laurentian Forestry Centre), Sainte-Foy, Quebec-Canada; Prof. F. Leclant (École National Superiéure Agronomique), Montpellier-France; Prof. J.M. Nieto Nafria (Departamento de Biologia da Universidad), León-Spain; Prof. O. Heie (Skive Seminarium), Skive-Denmark; Dr. J. Holman (Entomologicky ústav CSAV), Ceske Budejovice-Czecoslovakia.

TAXONOMY. The new genus belongs to the group of *Myzocallidini* in the subfam. *Phyllaphidinae* (*sensu* Remaudière & Stroyan, 1984) with few setae on the first two antennal segments (*Myzocallis-Tuberculatus, sensu lato*, and related genera and subgenera), which has the genus *Quercus* as host plants. The most similar genus is *Myzocallis* Pass., s.l., (Richards, 1968; Stroyan, 1977), from which *Apulicallis* differs in having single spinal hairs on abdominal tergites 1^{st}-6^{th} and no pleural hairs in alate morphs. Immature morphs and oviparae of the new genus have a chaetotaxy similar to that of alate morphs, with spinal setae from prothorax to the 6^{th} tergite still inconspicuous, while the marginal setae are very thick, rod-shaped and finely spinulose; in the embryo of *Apulicallis*, the very long spinal setae on 7^{th} tergite are distinctly laterally shifted, compared with the lines of the anterior abdominal spinal setae. From *Tuberculatus* Mordv., s.l. (Hille Ris Lambers, 1974), *Apulicallis* differs in the lack of spinal abdominal processes; also marginal abdominal setae on 2^{nd}-5^{th} tergites are not inserted apically on the cone-shaped elevations, as they are in *Tuberculatus*. Immature morphs of *Apulicallis* may be difficult to separate from those of *Tuberculatus* species with shortened abdominal spinal hairs on the first six tergites (viz. some species of the subgenera *Tuberculoides* v.d.G. and *Orientuberculoides* H.R.L.), also because the 7^{th} spinal hairs are, as usual, laterally shifted in these taxa. However, all marginal long body hairs in embryos and nymphs of *Tuberculatus* s.l., are smooth and not spinulose; besides the II-IV instar nymphs of the same genus may have either doubled spinals and pleural hairs on some tergites, or no sclerotised dorsal spots, thus being different from those of *Apulicallis*.

Immature morphs of *Hoplocallis* Pintera (considered as subgenus of *Myzocallis* by Quednau & Barbagallo, 1991) have the long dorsal body hairs spinulose like *Apulicallis*; but, in spite of this common feature, there are differences in the chaetotaxy and other morphological features (both in nymphs and adult stages) that render the former taxon quite different from the new one. Spinulation of dorsal body setae of apterous and immature morphs – whose phylogenetic significance in the group remain to be solved (Quednau, *in litt.*) – is even present in a few species of *Myzocallis* s.s., but is also known in other genera of Myzocallidini (i.e. *Serratocallis* Qued. & Chakr., *Mexicallis* Rem., *Anacallis* Rem.), all differing in several ways from *Apulicallis*.

HOST PLANT AND DISTRIBUTION. *A. trojanae* lives on the Macedonian Oak, *Quercus trojana* Webb, on which it was collected in different localities of the Apulia Region (South-Eastern of the Italian peninsula). Here, the host plant forms magnificent, native oaklands, sometimes in association with *Quercus ilex* L. The geonemy of the Macedonian Oak involves, apart from this small Italian area, the Balkans and Aegean Regions (fig. 27); therefore it is fair to suppose that the same range of distribution may be shared by the new aphid species.

LIFE CYCLE. The available collecting data show that *A. trojanae* is a holocyclic and monophagous aphid. Fundatrices were collected at the beginning of May, during the blossom stage, on the underside of tender leaves. They are followed by several generations of fundatrigeniae till the beginning of November, when immature stages (4ª instars) of sexuales start to be present. Adult amphigonic morphs (both males and oviparae), are present in highest numbers around the middle of November. Males appeared to be prevailing in number over the oviparae; the latter produce 6-10 winter eggs, as it is possible to see by their yellow-orange colour through the abdominal cuticle, after immersion of specimens in alcohol.

The host plant is a typical deciduous oak and, therefore, overwintering as eggs appears to be the sole possibility for the aphid to survive the cold season. The aphid, which is very common inside the small range of its host plant in Italy, lives scattered on the underside of leaves and is not attended by ants.

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PROF. SEBASTIANO BARBAGALLO, PROF.SSA ISIDORA PATTI - Istituto di Entomologia agraria, Università degli Studi, Via Valdisavoia, 5, I-95123 Catania.

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