Zootaxa 5471 (1): 033–055
https://www.mapress.com/zt/

Article

ISSN 1175-5326 (print edition)
ZOOTAXA
ISSN 1175-5334 (online edition)

https://doi.org/10.11646/zootaxa.5471.1.2
http://zoobank.org/urn:lsid:zoobank.org:pub:03BD4909-04A9-4C54-8296-ACC3955F1282

New species of gall wasps (Hymenoptera: Cynipidae: Aulacideini and Phanacidini) inducing galls on plants of the genera *Sonchus* and *Crepis* (Asteraceae) in Romania (Dobrogea Province) and notes on their parasitoids

ION ŞCHIOPU[1]*, MUSA TATAROĞLU[2] & YUSUF KATILMIŞ[3]
[1]*Phytosanitary Quarantine Inspectorate Constanţa Port- 900900, Romania*
romcleansion@yahoo.com; https://orcid.org/0000-0001-7168-0961
[2]*Pamukkale University, Acipayam Vocational School of Higher Education, Department of Veterinary, Laborant & Veterinary Health Program, Acipayam, Denizli, Turkiye*
mtataroglu@pau.edu.tr; https://orcid.org/0000-0002-9621-9909
[3]*Pamukkale University, Faculty of Science, Department of Biology, Denizli, Turkiye*
ykatilmis@pau.edu.tr; https://orcid.org/0000-0003-0880-1489
**Corresponding author*

Abstract

Two new species of herb gall wasps (Hym., Cynipidae) developing on plants in the genera *Sonchus* L. and *Crepis* L. (Asteraceae) are described from Southeastern Romania (Dobrogea Province): *Aulacidea andriescui* **sp. n.** gall inducer on *Sonchus palustris* L. and *Phanacis dobrogicus* **sp. n.** gall maker on *Crepis foetida* subsp. *rhoeadifolia* (M. Bieb.) Čelak. In addition to the diagnosis, identification, morphological description, life-cycle, geographical distribution, photos of gall and host plant, and SEM images, data on the associated fauna obtained from the galls of the two new species are also presented.

Key words: Cynipid, *Aulacidea*, *Phanacis*, new species, Romania

Introduction

The more than 1500 species of worldwide gall wasps in the family Cynipidae (Nieves-Aldrey 2001; Csóka *et al*. 2005; Melika 2006; Buffington *et al*. 2020) are classified, according to the latest studies in 13 tribes (Ronquist *et al*. 2015); four of these include galligenous wasps that produce galls on herbaceous plants: Aulacideini, Aylacini, Diastrophini (partially) and Phanacidini.

Aulacideini Nieves-Aldrey, Nylander & Ronquist, 2015 is one of the newly established tribes in the updated classification by Ronquist *et al*. (2015); the tribe is derived from the previously defined Aylacini Ashmead, 1903 and currently comprises 9 genera: *Antistrophus* Walsh, 1869, *Aulacidea* Ashmead, 1897, *Cecconia* Kieffer, 1902, *Hedickiana* Nieves-Aldrey, 1994, *Isocolus* Förster, 1869, *Liposthenes* Förster, 1869, *Neaylax* Nieves-Aldrey, 1994, *Panteliella* Kieffer 1901 and *Rhodus* Quinlan, 1968; with a total of 92 known species (Buffington *et al.* 2020; Azmaz & Katilmiş 2020, 2021; Tavakoli *et al*. 2022).

The genus *Aulacidea* was erected by Ashmead (1897) for the Nearctic species *A. harringtoni* Ashmead, 1897, which induces galls in host plants in the genera *Mulgedium* and *Lactuca* (Asteraceae) and comprises 43 species worldwide. Of these, 36 have a Palaearctic distribution (Nieves-Aldrey 2004, 2012; Azmaz & Katilmiş 2020, 2021; Tavakoli *et al*. 2022), while 19 species are known from Europe (Melika 2006; Nieves-Aldrey 2004, 2012; Zerova *et al*. 1988); seven species were reported in the Nearctic region (Burks 1979). Most species of *Aulacidea* produce galls on plants in the Asteraceae, with only a few attacking species of Lamiaceae (*Salvia* and *Phlomis*), Apiaceae (*Eryngium*) or Rosaceae (*Rubus*?).

In the fauna of Romania, five species have been previously reported: *Aulacidea abdominalis* (Thomson,1877) (=*macula* Forsius, 1921), *A. hieracii* (Linnaeus, 1758), *A. pilosellae* (Kieffer 1901), *A. tragopogonis* (Thomson,

Accepted by S. Van Noort: 10 May 2024; published: 17 Jun. 2024

1877) (=*pigeoti* Kieffer, 1898) (Ionescu 1957, 1973), and *Aulacidea follioti* Barbotin, 1972 (Şchiopu, unpubl. data). These five species are gall makers on plant species in the Asteraceae (*Scorzonera* spp., *Hieracium* spp., *Tragopogon* spp., *Sonchus asper* (L.) Hill.).

The tribe Phanacidini (also, derived from within the former tribe Aylacini) has been established recently by Ronquist *et al*. (2015) and includes the genera: *Asiocynips* Kovalev, 1982, *Diakontschukia* Melika, 2006, *Phanacis* Förster, 1860 and *Zerovia* Diakontschuk, 1988, with 40 species in total (Buffington *et al*. 2020; Azmaz & Katilmiş 2021; Tavakoli *et al*. 2022). This tribe is distributed in the Palaearctic Region, Afrotropical region (one described species, possibly introduced, and several undescribed species (S. van Noort pers. comm.)), Neotropical region and Australia (the latter also with accidentaly introduced species). Members of the Phanacidini induce galls on herbaceous plants from different families including mostly on Asteraceae, and less frequently on Apiaceae (*Eryngium* and *Heracleum*) and Lamiaceae (*Phlomis*) (Zerova *et al*. 1988; Nieves-Aldrey 1994; Melika 2006). The Phanacidini comprises a group of primitive genera of gall-inducers that make structurally simple galls, predominantly in the stems, less frequently in the flower heads and roots of grassy plants. The genus *Phanacis* Förster, 1860, is represented in Palaearctic Region by more than 30 known species (Melika & Karimpour 2012; Azmaz & Katilmiş 2020, 2021; Tavakoli *et al*. 2022).

In the western Palaearctic, only two species of cynipids are known that have host plants in the genus *Crepis*: *Phanacis lusitanica* Tavares, 1904 on *Crepis vesicaria* L. (=*Barkhausia taraxacifolia* DC) (syn. *Phanacis crepidos* Weidner, 1965 on *Crepis biennis* L.) (unreported in Romania) and *Phanacis rufipes* Ionescu & Roman, 1959 on *Crepis pulchra* L. (present in Romania; relatively recently and in Spain (Nieves-Aldrey 2005)). Jennings (2005) and Askew *et al*. (2006) cites the following host plants for *P. lusitanica* Tavares (=*crepidos* Weidner): *Crepis vesicaria* L., *C. biennis* L., *C. capillaris* (L.) Wallr., and *C. paludosa* (L.) Moench.

In this paper, we describe two new species of herb gall wasps from Romania and provide SEM images and biological data.

Material and methods

The material included in this study was collected, by the first author, in Southeastern Romania, in Dobrogea province (area between Danube River, Danube Delta and western shore of the Black Sea). All adult insects, gall wasps and parasitoids, were obtained from galls collected in the field, which were placed in glass jars closed with fine cloth, kept under outdoor environmental conditions, inspected weekly, until emergence of the adults. After emergence the adults obtained from galls were stored in cryogenic vials containing 75% ethanol. Several representative specimens of both females and males were mounted on triangular cards, in order to examine and determine the species. Description of morphological structures follows Liljeblad & Ronquist (1998) and Melika (2006). Terminology of the cuticle surface is taken from Harris (1979). Venation abbreviations of the forewing are taken from Ronquist & Nordlander (1989). The material has been determined using works of Zerova *et al*. (1988), Nieves-Aldrey (2001) and Melika (2006).

The dissected specimen parts were mounted on a stub with cooper tape and then coated with a layer of Au/Pd. The mounted specimens were examined with a Zeiss Supra 40VP SEM with 10–20 KV voltage at the Advanced Research Laboratory, Pamukkale University.

External morphology was illustrated with SEM images, and photographs were captured using a Leica EZ4W stereomicroscope with an incorporated digital Camera. Some parasitoid species (e.g. *Eurytoma* species) were identified using the reference work of Zerova & Seryogina (2009).

Abbreviations. F1–F11 (F12): first and subsequent flagellomeres; LOL: lateral-frontal ocellar distance, the distance from the inner edge of a lateral ocellus to the edge of the anterior ocellus; OOL: ocellar-ocular distance, distance from the outer margin of a posterior ocellus to inner margin of the compound eye; POL: post-ocellar distance, distance between inner margins of the posterior ocelli; T2–T3: metasomal tergites 2 and 3; 2r: one of the branches of the radial vein, it delimits the radial cell; Rs+M: also called ulnar/cubital vein; starts from the areola towards the basal vein; M: basal vein or basalis also called transverse vein.

"G.A." NMNH—"Grigore Antipa" National Museum of Natural History, Bucharest (Str. Kiseleff-1), Romania

Coll. JP-V—Collection Juli Pujade-Villar provisionally deposited in University of Barcelona (UB), Spain

Coll. SION—Collection of Şchiopu Ion (Comana, Str. Bisericii-1, Constanţa County, Romania)
ERL–PAU—The Entomology Research Laboratory, Pamukkale University, Denizli, Turkiye

Results

Tribe Aulacideini Nieves-Aldrey, Nylander & Ronquist, 2015

Genus *Aulacidea* Ashmead, 1897

***Aulacidea andriescui* sp. n.**
(Figs. 1–5)

Type material. HOLOTYPE (♀): Romania, Dobrogea Province, Hagieni forest Natural Reserve, 43°47'38'' N, 28°27'32'' E; ex. gall in stem of *Sonchus palustris* L. (Asteraceae); galls collected 26.X.2022; adult emerged 05.V.2023 (Șchiopu leg.). Holotype deposited in "G.A." NMNH and ERL–PAU. PARATYPES: 43♀♀, thus obtained: 12♀♀, Romania, Dobrogea Province, Constanta county, Hagieni forest Natural Reserve, 43°47'38'' N, 28°27'32'' E; ex. galls in stem of *S. palustris*; galls collected on 16.XI.2022; adults emerged on 15.V.2023: 20♀♀, same data as above; galls collected on 25.XI.2022; adults emerged on 22.V.2023: 10♀♀, same data as before, but galls collected on 30.XI.2022; adults emerged on 14.VI.2023: 1♀, same data; ex. gall on leaves of *S. palustris*, gall collected on 10.XII.2022; adult emerged on 21.VI.2023 (Șchiopu leg.). Paratypes deposited in "G.A." NMNH (3♀♀); ERL–PAU (2♀♀); Coll. JP-V (2♀♀); Coll. SION (36♀♀).

Etymology. The species is named in honour of Prof. Dr. Andriescu Ionel ("Alex. I. Cuza" University-Iași) a renowned chalcidologist from Romania and mentor of the first author. Noun in the genitive case.

Diagnosis. The new species resembles *Aulacidea follioti* Barb. which produces galls on host plants of the same genus (*Sonchus*); moreover, this species is also present in Romania. It is differentiated by the following character states: head 1.3 X higher than wide, in anterior view; 1.9 X wider than long, in dorsal view, sometimes slightly exceeds the width of the mesosoma; transfacial distance 1.2 X as long as height of eye and 1.48 X as long as height of lower face; F3 1.1 X longer than F4; median mesoscutal line broadened posteriorly, exceeding almost 1/6 of length of scutum; mesopleuron with uniform transverse parallel interrupted fine striae; scutelar foveae large, elongated (almost 1.8 X longer as broad), deep, open to the transscutal suture; radial cell 2.7 X longer as broad, areolet distinct, triangular, wide, well defined; coxae and pretarsus (with claws) dark brown; metasomal T2, measured on dorsal line, occupy more than half of metasomal length; T3 with rare, indistinct punctures, subsequent tergites and hypopygium with dense, distinct micropunctures; galls are formed within the stem and midrib of leaves of *Sonchus palustris*, while in *A. follioti*: head slightly wider or at least as wide as high, in front view; 2.0 X as wide as long, exceeding width of thorax; transfacial distance 1.5 X as long than height of eye; F3 0.8 X as long than F4; median mesoscutal line absent; mesopleuron with fine longitudinal costulated-striate sculpture; scutellar foveae small and narrow; radial cell 2.5 X as long than wide, areolet very small or absent; coxae, trochanteres and base of femurs darkened; metasomal T2 covered 1/3 or 2/5 of metasomal length; entire metasoma without punctures; galls are formed within the stem of *Sonchus asper*.

The new species is also morphologically similar to *Aulacidea abdominalis* (Thoms., 1877), but differs by: F1 1.5 X as long as pedicel; F2 1.3 X as long than F1; median mesoscutal line broadened posteriorly, extending 1/6 of scutum length; Rs+M exceed 3/4 of the distance between the areola and basalis; lateral propodeal carinae parallel, while in *A. abdominalis*: F1 1.7 X as long as pedicel and very slightly shorter than F2; median mesoscutal line like a very short triangle; Rs+M reach basalis; lateral propodeal carinae convergent posteriorly; galls are formed within the flower head of *Scorzonera* spp. Also, the new species resembles *Aulacidea tragopogonis* (Thoms., 1877) but differs in the following characters: the female antenna 13 segments (14 segments in *A. tragopogonis*); diameter of antennal torulus 2.0 X as long as distance between them, and 1.58 X shorter than distance between torulus and eye margin (4.6–4.8 X as long as distance between them and equal to distance between torulus and eye margin; galls are formed within the stem and root collar of *Tragopogon* spp. in *A. tragopogonis*). Based on the above diagnostic morphological character states, including the type of gall, biology, ecology, and host plant association, the new species is clearly differentiated from the known species of the genus *Aulacidea*.

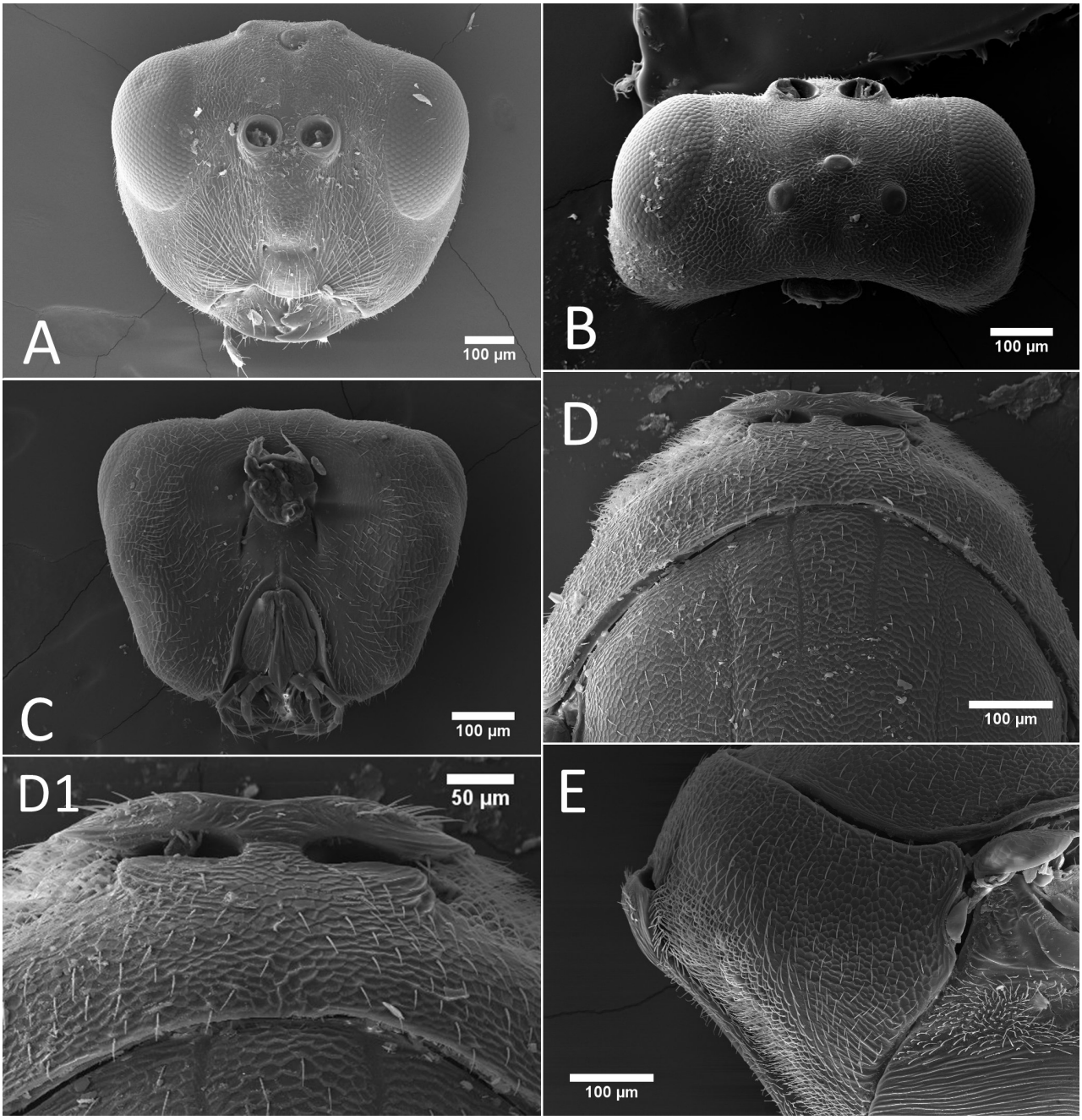

FIGURE 1. *Aulacidea andriescui* sp. n. (♀): **A**, **B**, **C,** head in frontal, dorsal, respectively posterior view; **D**, pronotum dorsal view; **D1**, pronotum-detail with submedian pronotal pits; **E**, pronotum in lateral view.

Description.

FEMALE (holotype).

Body length: 2.0–2.2 mm; length of head+mesosoma almost equal to length of metasoma.

Colour: head and thorax black; metasomal T2 light brown, remaining tergites black–brown; scapus+pedicel black, the flagellomeres brown, grading to black brown towards the tip of the antenna; coxae and pretarsus black; trochanters, femurs, tibiae and first four segments of tarsus light chestnut.

Head (Fig. 1A–C): seen from the front, almost round, 1.3 X higher than wide and 1.9 X as broad as long from dorsal view; with fine alutaceus-coriaceous sculpture and covered with very few scattered short white setae. Lower face with interrupted striae, radiating from lateral margins of clypeus, extending close to the ventral edges of compound eyes and antennal sockets, without touching them. Median elevated area of lower face obscure

coriaceous, without striae and covered only with very few white setae, scattered, especially in ventral edge. The malar space, coriaceous partially, 0.6 X as long as height of the compound eye; its surface covered with same striae as lower face. Clypeus quadrangular, almost as wide as high; slightly curved ventrally but not projecting over mandibles. Anterior tentorial pits conspicuous; epistomal sulcus and clypeo-pleurostomal line weakly impressed. Gena delicately coriaceous. Transfacial distance 1.2 X as long as height of eye and 1.48 X as long as height of lower face. Diameter of antennal torulus 2.0 X as long as distance between them, and 1.58 X shorter than distance between torulus and eye margin. POL 1.5 X as long as OOL, 2.2 X as long as LOL and 3.1 X as long as diameter of lateral ocellus. Frons, vertex as well as occiput fine alutaceus-coriaceous. Gular sulci slightly divergent, almost parallel-they extend to half the distance between the occipital foramen and the hypostomal carina; postgena delicately alutaceous, covered with rare white setae.

Antennae (Fig. 3N–P): filiform, with the last flagellomere not broadened; shorter than body length (sometimes reach half of the metasoma); all segments, less scapus+pedicel, covered with a short, silvery–white pubescence, oriented toward the tip of the flagellum; the female antenna with 13 segments; scapus and pedicel black; flagellomeres light chestnut to dark brown, thus: F1–F3 chestnut colour, F4–F7 each flagellomere half chestnut, half brown, F8–F11 completely darkened; placodeal sensilla on F2–F11, weakly impressed. Pedicel slightly elongated, 1.18 X as long than wide; F1 1.5 X as long as pedicel; F2 1.3 X as long than F1 and approx. equal with F3, also F4; F5–F10 nearly equal to each other and slightly shorter than F1–F4; F11 2.1 X as long as F10.

Mesosoma (Fig. 2H–K): convex dorsally, 1.2 X as long as high in lateral view, covered with sparse white setae. Pronotum (Fig. 1. D, D1, E) entirely fine coriaceous-reticulate, with rarely, scattered white setae, except anterior margin which is densely pubescent; also, the pronotum, on the median dorsal line, measures about 1/2 of the distance measured on the outer lateral margin; submedian pronotal pits transversely, deep, oval-elongated, open laterally, separated from each to other by a relatively narrow bridge; pronotal plate with the same sculpture as well as the pronotum, and with sparse white setae on hers surface; axillula nearly triangular, 1.6 X as long as high, smooth, shiny in posterior part and with relative dense white setae in anterior area; subaxillular bar smooth, shinning; lateral axillar area striate, in antero-ventral direction, with rare, strong striae; dorsal axillar area also striate. Mesopleuron, inclusively speculum, with uniform transverse parallel interrupted fine striae; the parallel striae, viewed antero-posteriorly, became slightly curved in the central area of mesopleuron; only in the ventral-posterior angle and the along ventral margin with sparse white setae; the mesopleural triangle covered with dense pubescence especially in the anterior half, while the posterior area is smooth, shiny, without setae; propleura smooth faced, without striae, only a few setae, scattered, especially toward its edges. Scutum reticulate-coriaceous; as long as wide, 1.8 X longer than the scutellum; notauli incomplete, they do not touch the anterior edge of the mesoscutum, but extend to half its length, the rest of the distance, up to the anterior limit of the mesonotum, continue with a narrow, superficial, almost indistinct line; median mesoscutal impression broadened posteriorly, short relative, extending approx. 1/6 of length of scutum; anterior parallel lines distinct, extending nearly to 1/3 of scutum length; parapsidal lines visible, superficial, not deep, weakly impressed, they do not start from the posterior edge of the scutum, but a short distance from it, and exceed the level of the tegulae. Scutellum slightly wider (1.1 X wider than long); rounded posteriorly; 1.79 X shorter than the scutum length; reticulate central on disk, strongly rugose latero-dorsally; it spills very little over the metanotum; the scutellar foveae large, elongated (approx. 1.8 X as long as broad), smooth and shinning, placed obliquely, almost joined in the anterior part and divergent posteriorly, separated between them by a wider space in the posterior part, deeps, well contoured posteriorly and the lateral parts, wide opened at the edge from the transscutal suture. Propodeum smooth, shinning; the median propodeal area is smooth centrally, only toward its edges covered with some relatively long white setae; the lateral propodeal area with a dense white pubescence; lateral propodeal carinae parallel; the metapleural sulcus touches the mesopleuron in upper half of its height; metanotal foveae uniformly covered with short dense white setae; dorsellum smooth, without setae; nucha short, surrounded by a some strong irregular wrinkles to rugose sculpture at its base.

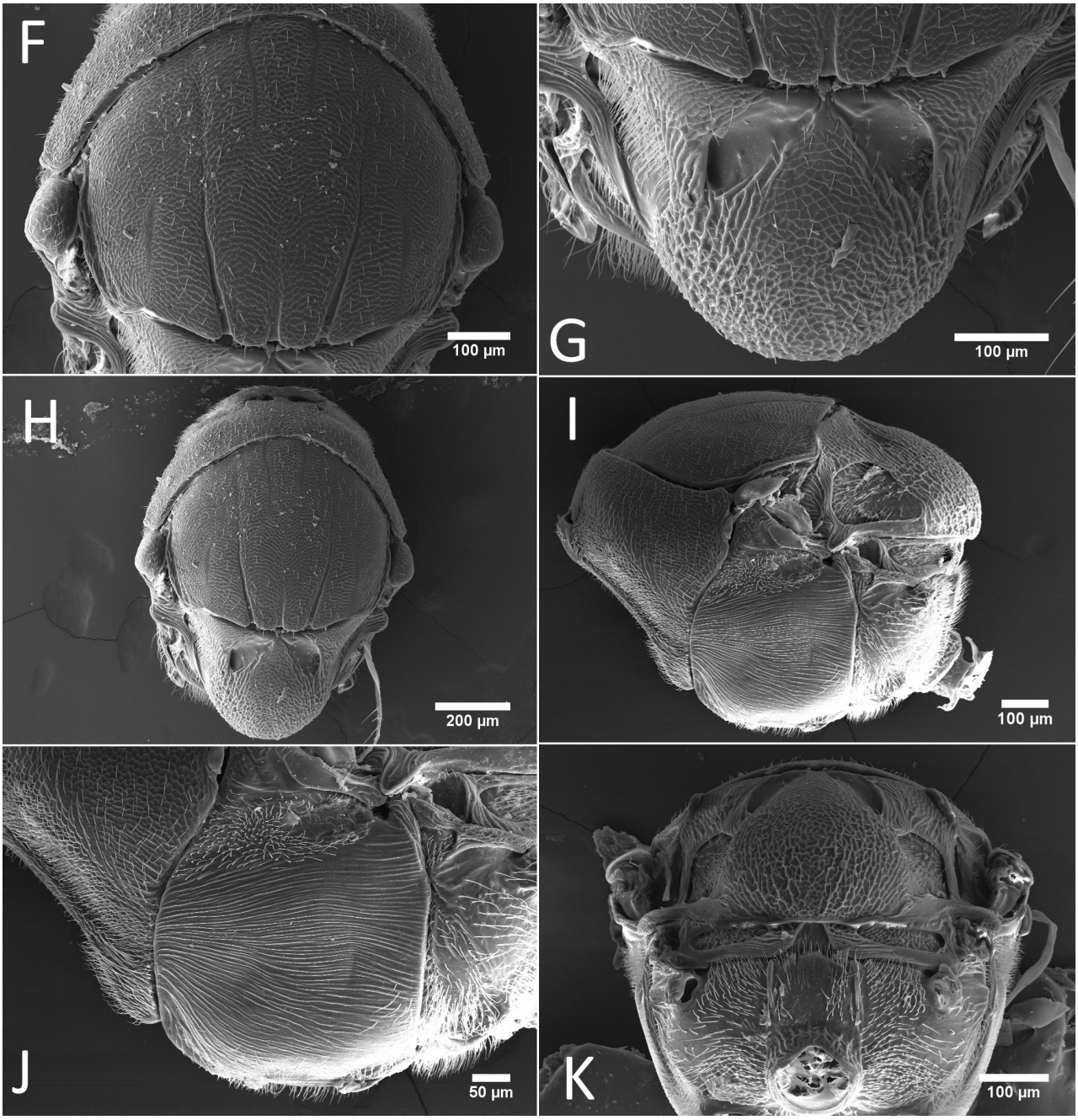

FIGURE 2. *Aulacidea andriescui* sp. n. (♀): **F**, scutum dorsal view; **G**, scutellum dorsal view; **H**, **I**, **K** mesosoma dorsal, lateral respectively posterior view; **J**, mesopleuron.

Legs (Fig. 3L): light chestnut colour; except coxae and pretarsus dark–brown; tarsal claws simple (Fig. 4Q), without basal lobe, with a few long setae; all segments covered with white, short, scattered setae, somewhat longer and denser on the tibia and tarsomeres.

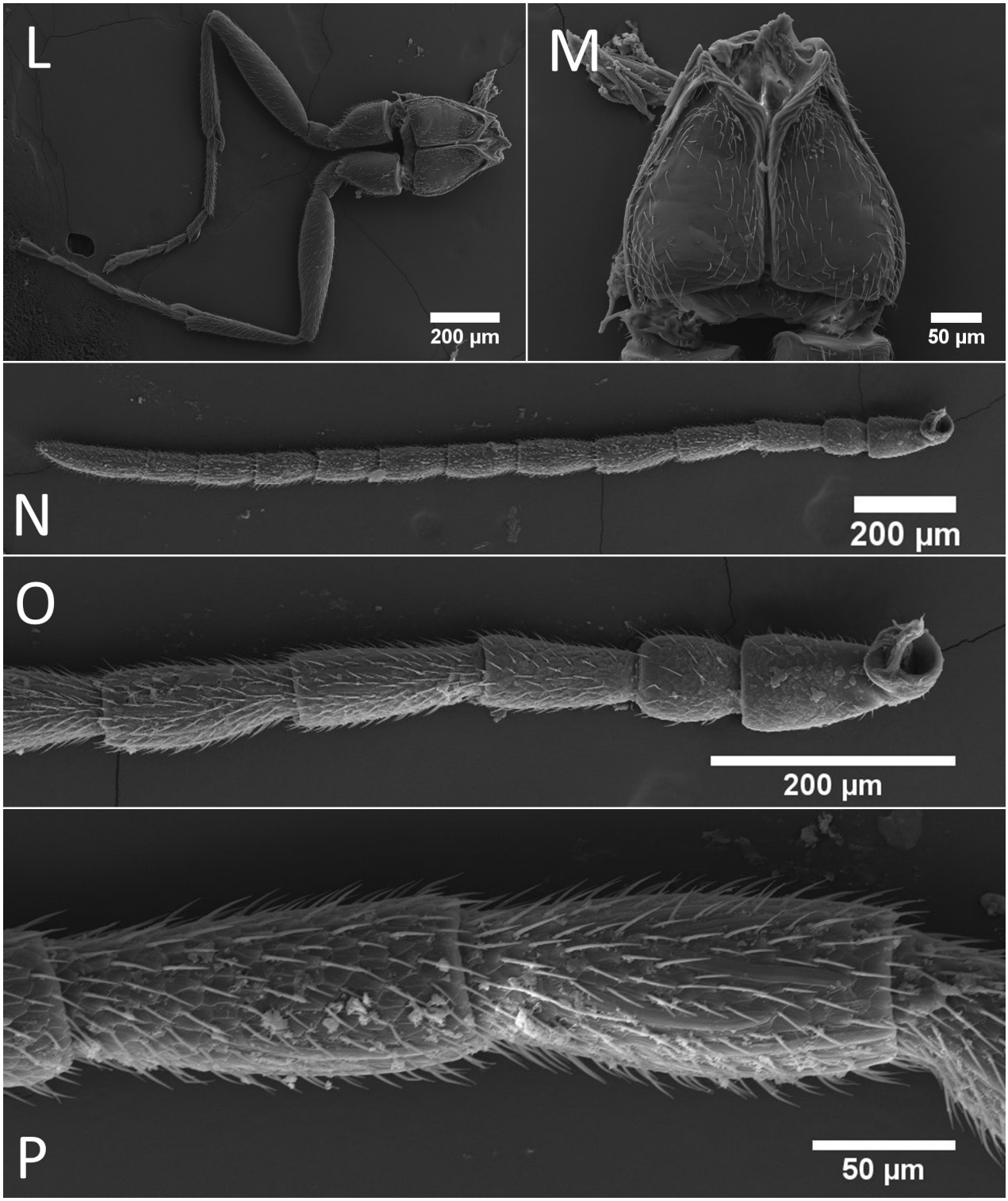

FIGURE 3. *Aulacidea andriescui* sp. n. (♀): **L**, propleura and first legs; **M**, propleura; **N**, **O,** antenna general and in detail view; **P**, antenna with F2–F3 in detail-antenomeres.

Forewing (Fig. 4T): exceed the body length with a length nearly equal of mesosoma length; hyaline, with dark–brown veins, well pigmented; wing surface and margins with short, rare cilia, slightly longer and dense on the apical edge; radial cell entirely closed, 2.7 X longer than wide; areolet distinct, triangular, wide, well defined; sometimes, the base of the vein M, which form one of the side of areolet, is obscure; Rs+M distinct, exceed 3/4 of the distance between the areolet and basal vein; 2r curved.

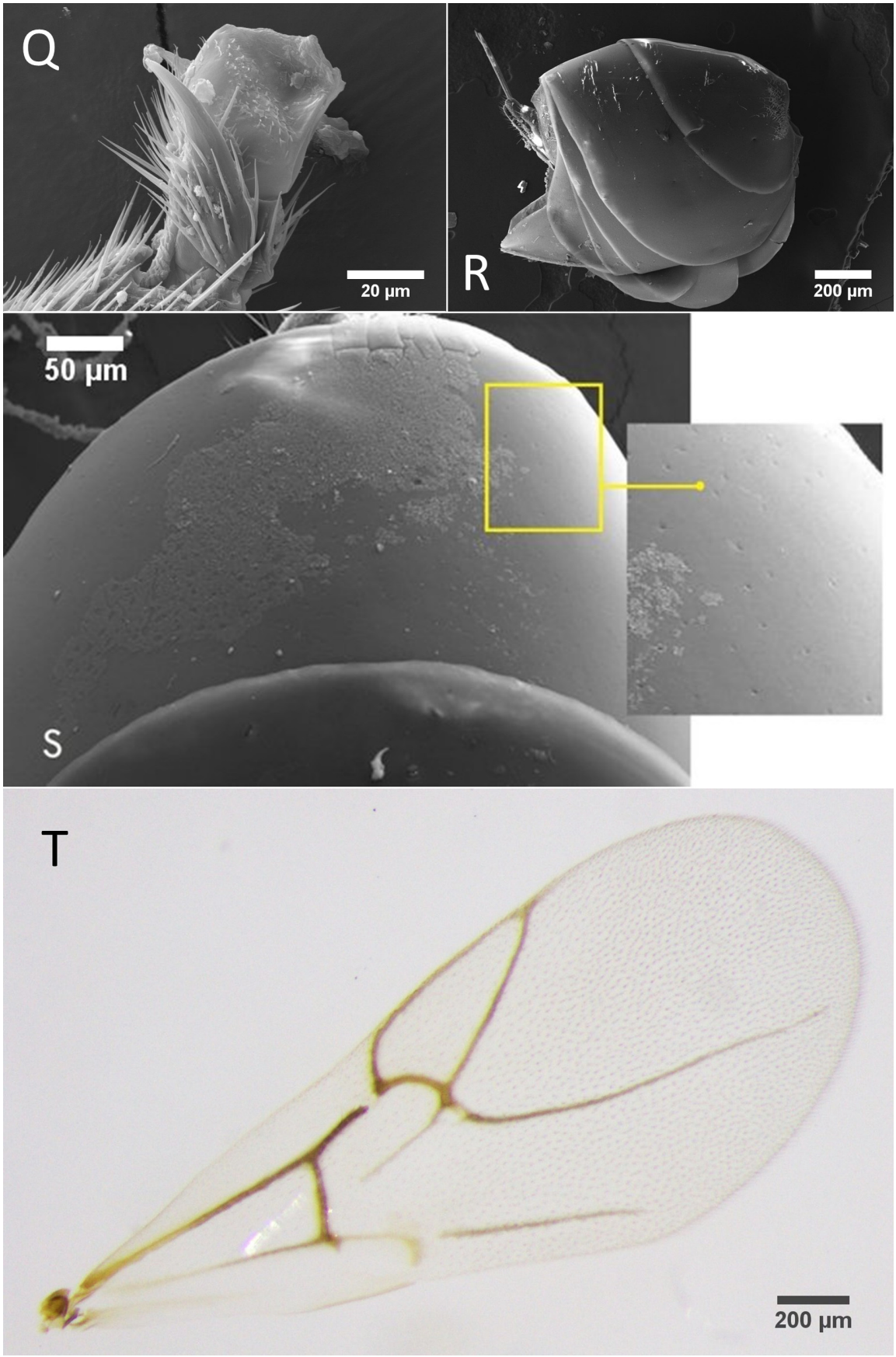

FIGURE 4. *Aulacidea andriescui* sp. n. (♀): **Q**, tarsal claws; **R**, metasoma lateral view; **S**, metasomal T3 with sculpture detail-punctures; **T**, forewing.

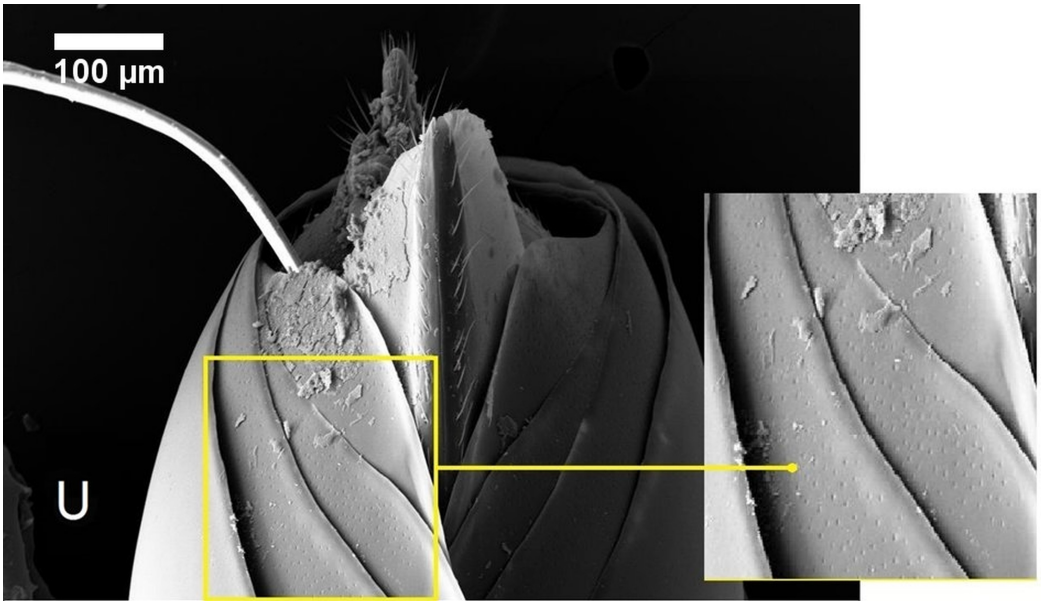

FIGURE 5. *Aulacidea andriescui* sp. n. (♀): **U**, ventral spine, hypopygium and the last tergites with sculpture detail.

Metasoma (Fig. 4R): 1.1 X longer than high, in lateral view; the metasomal T2 with a small patch of dense white setae antero-laterally; measured on dorsal line occupy more half of metasoma length and is 2.0 X as long than T3; also, T2+T3 cover almost the entire length of the metasoma; T3 with rare, indistinct punctures uniformly scattered, especially in dorso-lateral area; subsequent tergites as well as hypopygium with very fine dense distinct micropunctures, except for their ventral margins (Fig. 4S); the prominent part of the ventral spine of the hypopygium very short, not exceeding the tip of spine, covered with sparse white setae located ventrally in two parallel rows.

Remarks: male unknown; in 15 specimens, out of a total of 43 (designated as paratypes), the ovipositors are not visible, but the other morphological characters are identical to those of the females.

Host plant (Fig. 6): *Sonchus palustris* L. (Asteraceae: Cichorieae), Common name: Marsh Sow-thistle. Synonyms: *Hieracium palustre* (L.) E.H.L. Krause; *Sonchus paludosus* Gueldenst.; *Sonchidium palustre* (L.) Pomel; *Sonchus inundatus* Popov. Perennial plant; grows in forests, along streams, in wet, swampy, peaty areas; yellow flowers, blooming from July to mid-September; stem height 30–40 up to 250 cm. The gall-bearing plants from which the new species were reared were collected from the marsh biotope.

FIGURE 6. *Sonchus palustris* L.; the host plant (photos by I. Schiopu).

Galls (Fig. 7, 8): develop inside the stem in a hypertrophied tissue, usually grouped where the leaves are attached to the stem. At the site of gall formation, a globular or slightly elongated swelling (8–20 mm Φ) can be

observed, which has some semi-spherical elevations on the outside, corresponding to the larval chambers inside the stem. 1–3 multilocular galls can form in a stem, together with several isolated galls (larval chambers of 4–5 mm in Φ), arranged along the inner walls of the stem (Fig. 8 j, k); sometimes galls also develop on the midrib of the basal leaves; thus, 1–3 spherical ovoid galls (4 mm Φ), unilocular, strung on the main vein can form on a leaf (Fig. 7g–i).

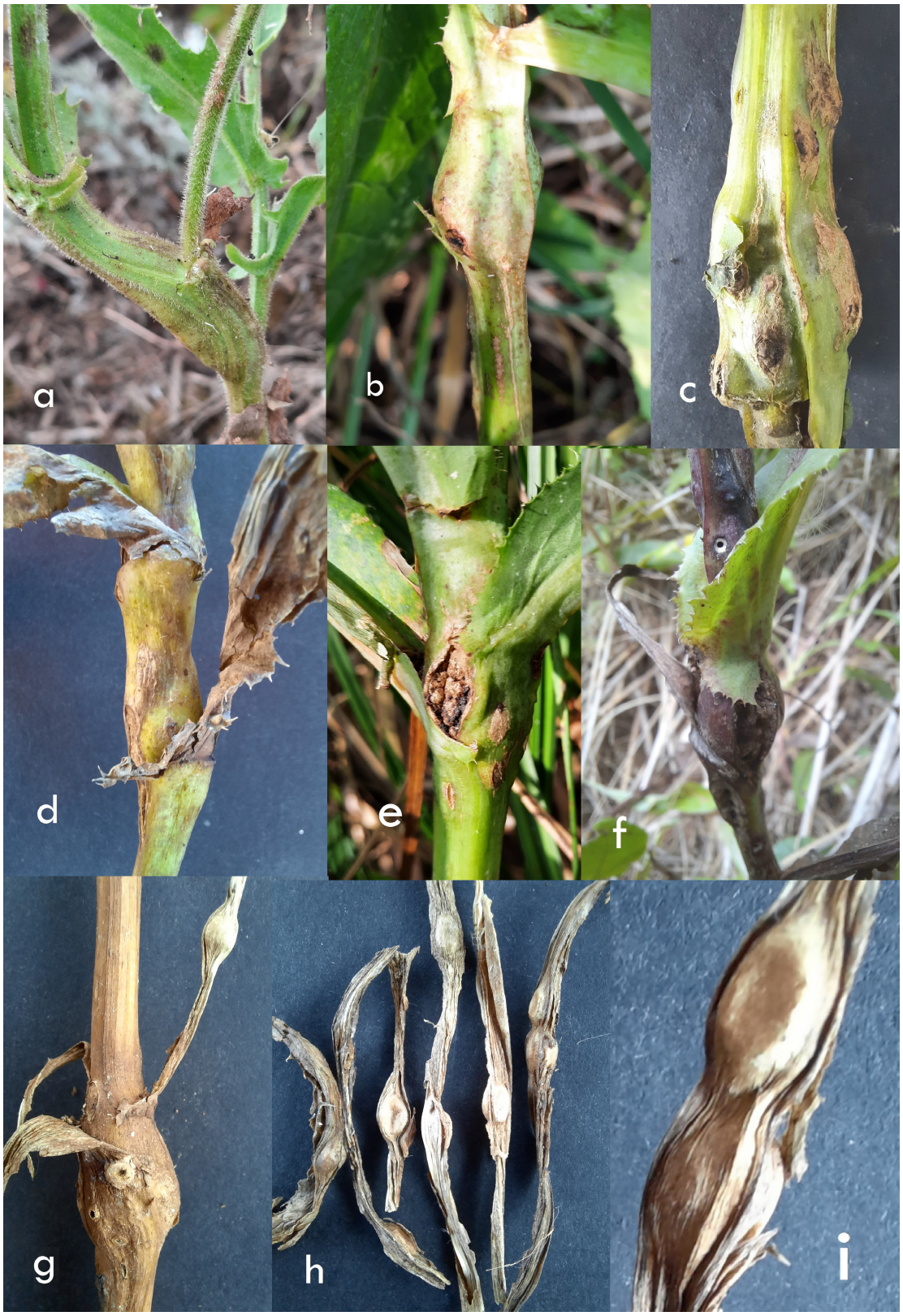

FIGURE 7. *Aulacidea andriescui* sp. n.; **a**–**f**, plurilocular young galls into stem; **g**, ripe galls into stem and leaf; **h**, monolocular mature galls in leaves; **i**, galls in leaf (photos by I. Schiopu).

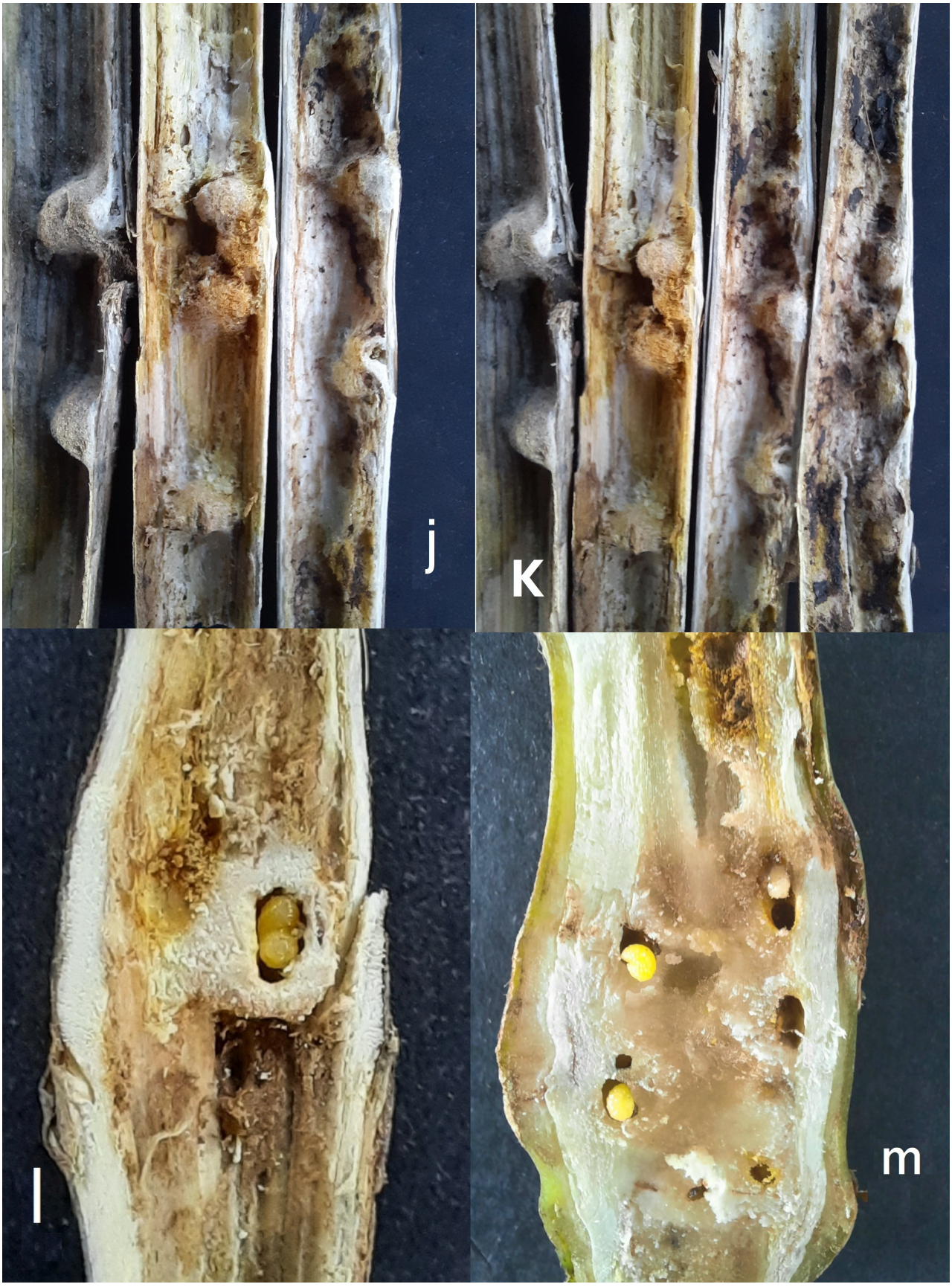

FIGURE 8. *Aulacidea andriescui* sp. n.; **j**, **k**, monolocular galls in the internal walls of the stems; **l**, **m**, longitudinal section in plurilocular gall of stem (larval chambers with larvae) (photos by I. Schiopu).

Life cycle: monovoltine species, a single generation synchronised with its annual host plant. Gall-maker cynipid overwinter as larvae inside the galls (on host plant) and pupate the following spring; adult gall wasps emerge during May–June; the females lay eggs in late May in stem tissue and basal leaves and the life cycle resume; the new galls are evident on the host plants from the middle of June. Optimal time of gall collection: late autumn Oct.–Nov. [outside optimal period, the identification of the gall-bearer plants is very difficult, sometimes impossible, because in winter the plants rot and decompose/collapse]. The frequency of the attack of the new species on the host plant: F=53%.

Associated fauna: together with the cynipid adults, some parasitoid species associated with the galls of the new species were also obtained. Some of the parasitoids emerge from the galls in early July, in the first year, and the rest emerge in the spring of the following year (April–May).

Parasitoids

—Hym., Chalcidoidea

Eupelmidae:	*Eupelmus vesicularis* (Retzius, 1783)*, 6♀♀ (emerged in IV.2023)
	Eupelmus sp. indet., 1♀ (emerged also in IV.2023)
Eurytomidae:	*Eurytoma* sp. near *phlomidis* Zerova, 1978 **, 47♀♀, 38♂♂ (emerged during V.2023)
	Eurytoma cynipsea Boheman, 1836, 5♀♀, 2♂♂ (emerged in V.2023)
	Eurytoma aspila (Walker, 1836), 1♀, 2♂♂ (emerged in V.2023)
Pteromalidae:	*Pteromalus hieracii* (Thomson, 1878), 2♂♂ (emerged in IV.2023)

Occasional fauna: *Staphylinidae*—as predators of the gall wasp adults developing in the stem.

* 3♀♀ obtained from galls of leaves (emerged on 10–26.IV.2023)

** abundant, constant, and dominant, as key species, within the complex of parasitoids.

Geographical distribution: currently *Aulacidea andriescui* **sp. n**. is only known from the "Hagieni forest Natural Reserve" in Dobrogea Province, Southeastern Romania. However, it is possible that more sampling effort could result in finding the species in other parts (the damp zones) within the area of the host plant distribution.

Comments: the fauna of gall wasps (Cynipidae) that develop on herbaceous plants in Romania, is little known: only 24 species, which represent 18% of the total number of galligenous cynipid species (131) reported in Romania (Schiopu, in press). Through this study, two more species of herb gall wasps are added to the Romania's list of cynipids.

Only a single species of gall wasp (Cynipidae) was described from Romania developing on plants of the genus *Sonchus* (Asteraceae): *Aulacidea follioti* which produces galls in stems of *Sonchus asper* (Schiopu, unpubl. data); the new species described here, *Aulacidea andriescui* **sp. n.**, developing on *Sonchus palustris*, being the second record. This is the first record of *S. palustris* being used as a gall wasp host plant. The associated parasitoid wasp complex is documented for the first time, highlighting the interspecific relationships between the host cynipid and the parasitoid species.

Tribe Phanacidini Nieves-Aldrey, Nylander & Ronquist, 2015

Genus *Phanacis* Förster, 1860

***Phanacis dobrogicus* sp. n.**
(Figs. 9–12)

Type material. HOLOTYPE (♀): Romania, Dobrogea Province, Constanţa County, Eforie South (44°01'22.58'' N, 28°38'57.95'' E) on the western coast of Black Sea, Km 33 on the Constanţa-Mangalia road DN 39 (E87), near "23 August" village; ex. galls in basal leaves of *Crepis foetida* subsp. *rhoeadifolia* (M.Bieb.) Čelak.; galls collected 16.VI.2011; adult emerged March 2012 (Schiopu leg.). Holotype deposited in "G.A." NMNH. PARATYPES: (21♀♀, 1♂), thus obtained: 9♀♀, Romania, Dobrogea Province, Constanta county, Eforie South-on the Black Sea coast; ex. galls on *Crepis foetida* subsp. *rhoeadifolia* collected on 26.VI.2011; adults emerged in March

2012: 10♀♀, Romania, Dobrogea Province, Constanta County, Neptun-on the coast of Black Sea; ex. galls on *Crepis foetida* subsp. *rhoeadifolia* collected on 02.VII.2011; adults emerged in March 2012: 2♀♀, 1♂, Romania, Dobrogea Province, Constanta County, Comana village; ex. galls on *Crepis foetida* subsp. *rhoeadifolia* collected on 22.VII.2012; adults emerged in April 2013; (Schiopu leg.). Paratypes deposited in "G.A." NMNH (2♀♀); Coll. JP-V (2♀♀); ERL–PAU (1♀); Coll. SION (15♀♀, 1♂).

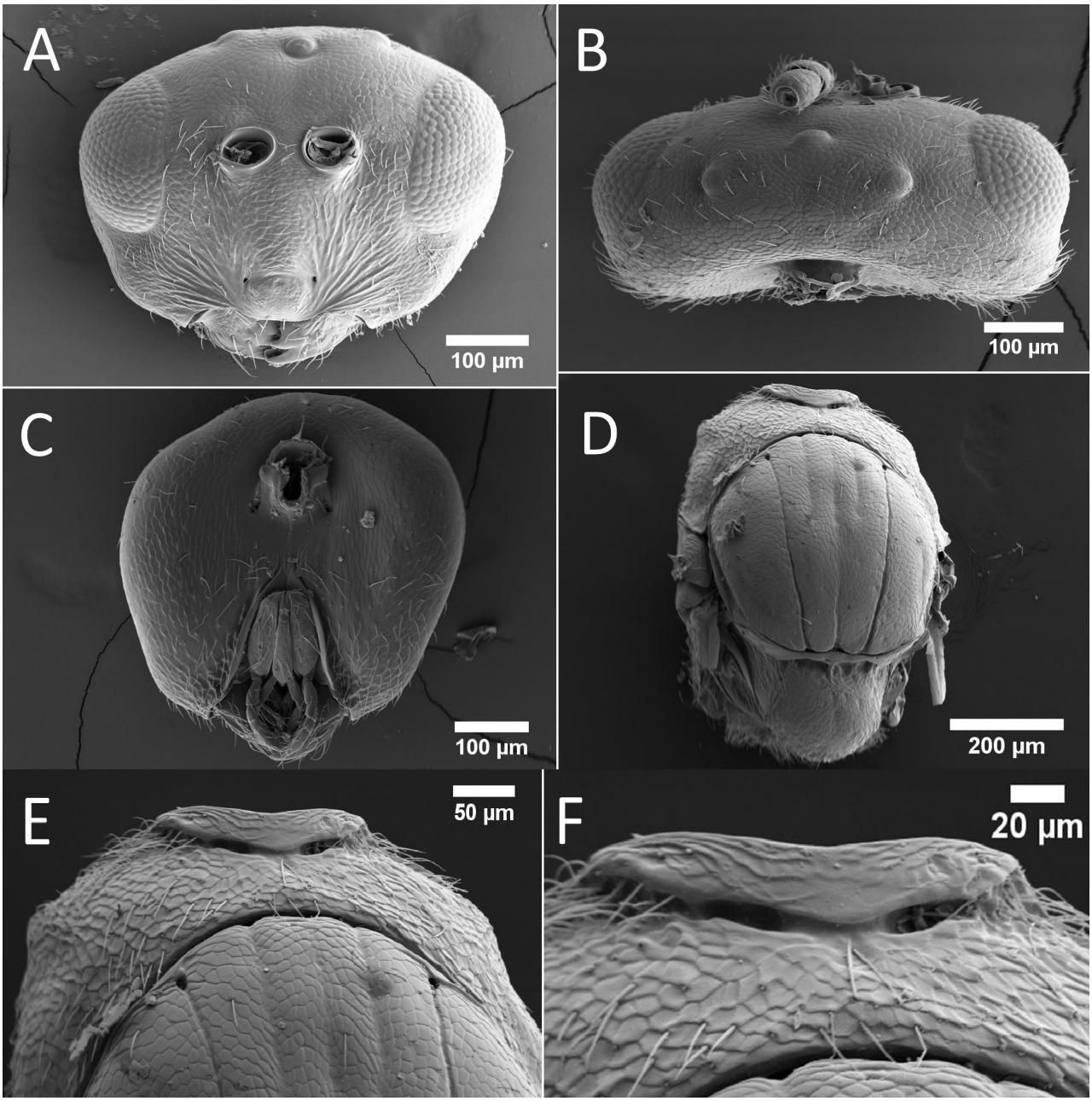

FIGURE 9. *Phanacis dobrogicus* sp. n. (♀): **A** , head in frontal view; **B**, head in dorsal view; **C**, head in posterior view; **D**, mesosoma in dorsal view; **E**, pronotum in dorsal view; **F**, pronotum detail with submedian pronotal pits.

Etymology. Derived from the name of Dobrogea Province (Southeastern Romania) where this species was first time found. Noun in apposition.

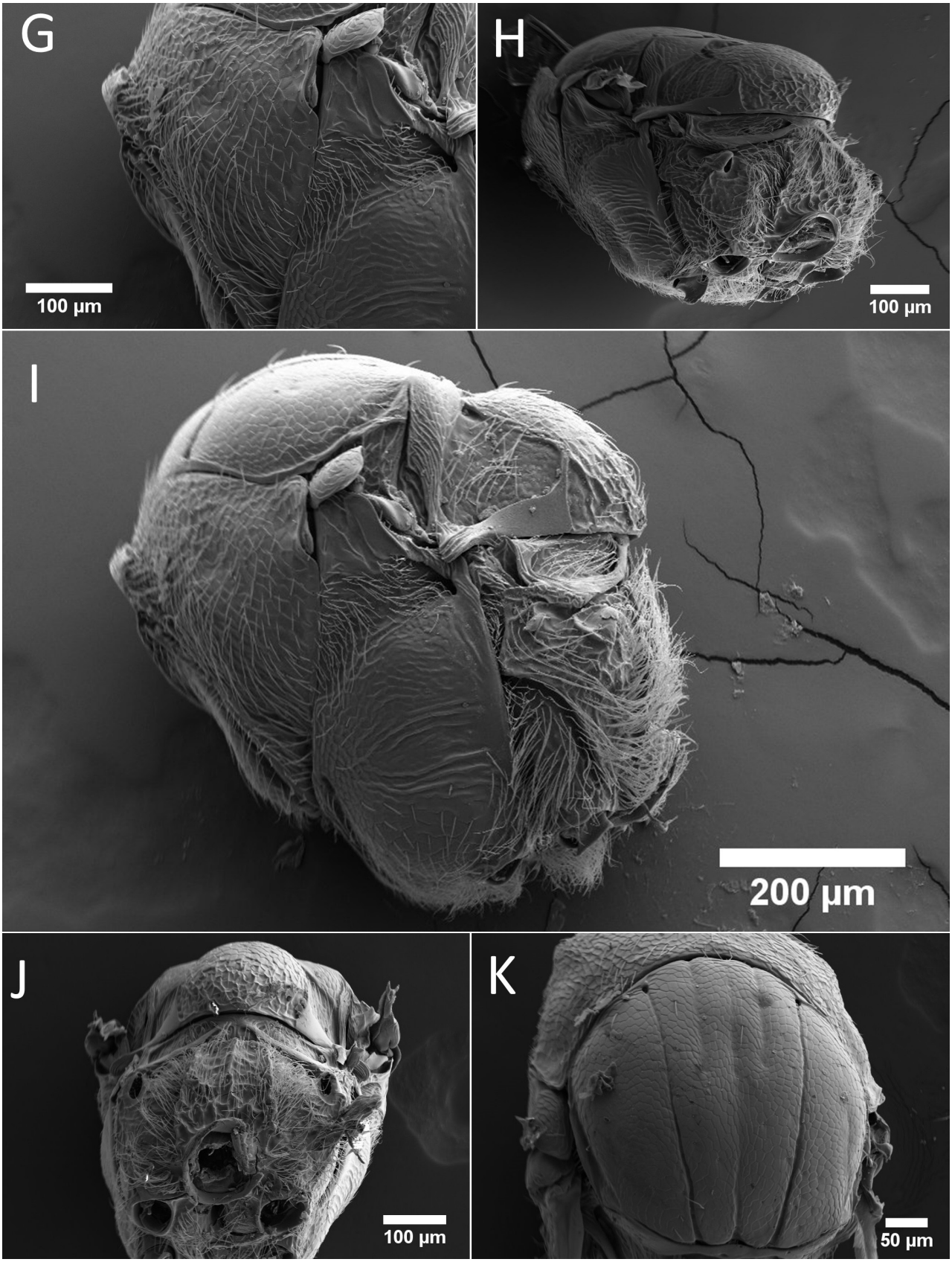

FIGURE 10. *Phanacis dobrogicus* sp. n. (♀): **G**, pronotum in lateral view; **H**, **I,** mesosoma-postero-lateral, respectively lateral view; **J**, mesosoma in posterior view; **K**, scutum in dorsal view.

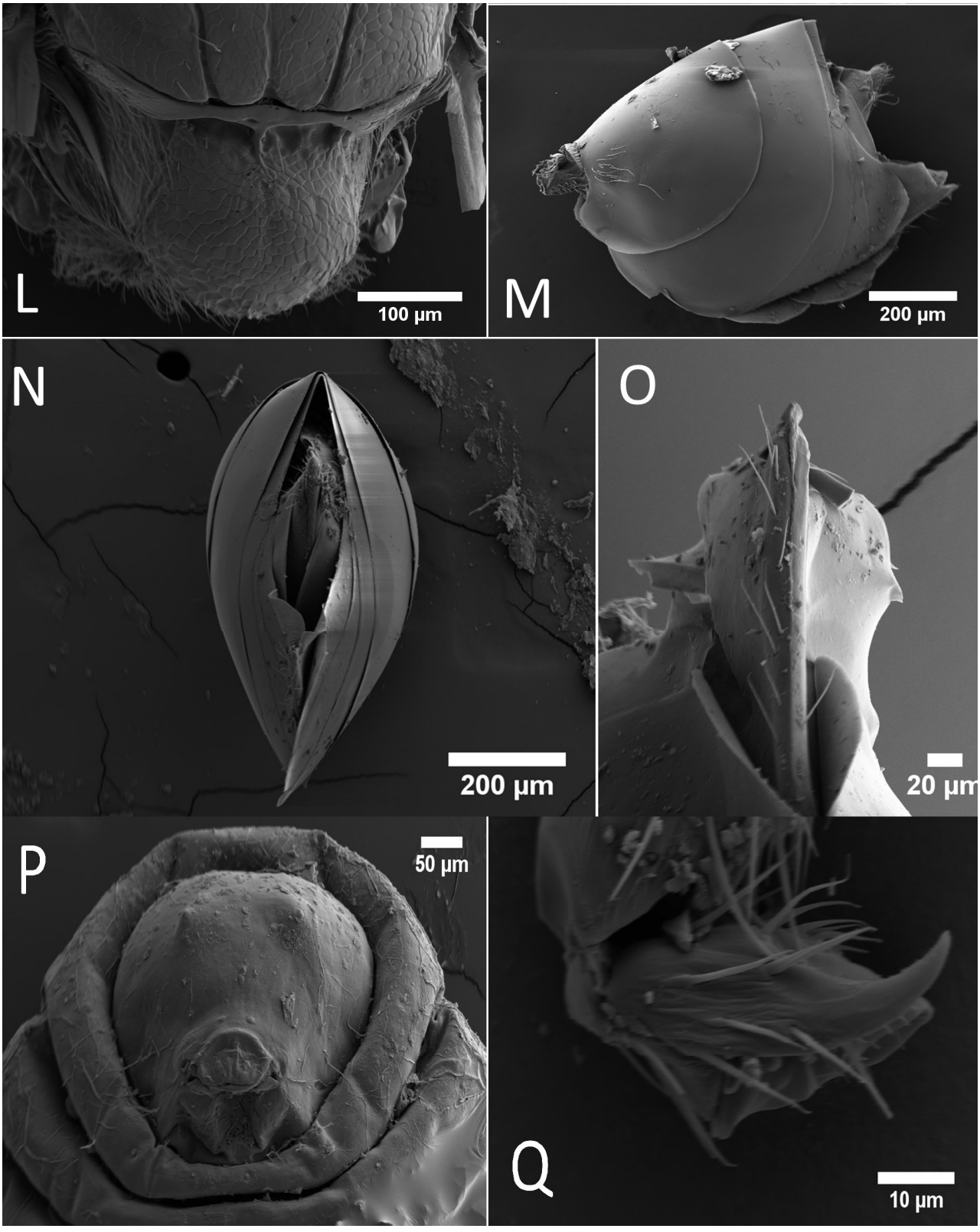

FIGURE 11. *Phanacis dobrogicus* sp. n. (♀): **L**, scutellum in dorsal view; **M**, metasoma in lateral view; **N**, metasoma in posterior view; **O**, hypopygium in ventral view; **P**, head of larva-frontal wiev; Q, tarsal claws.

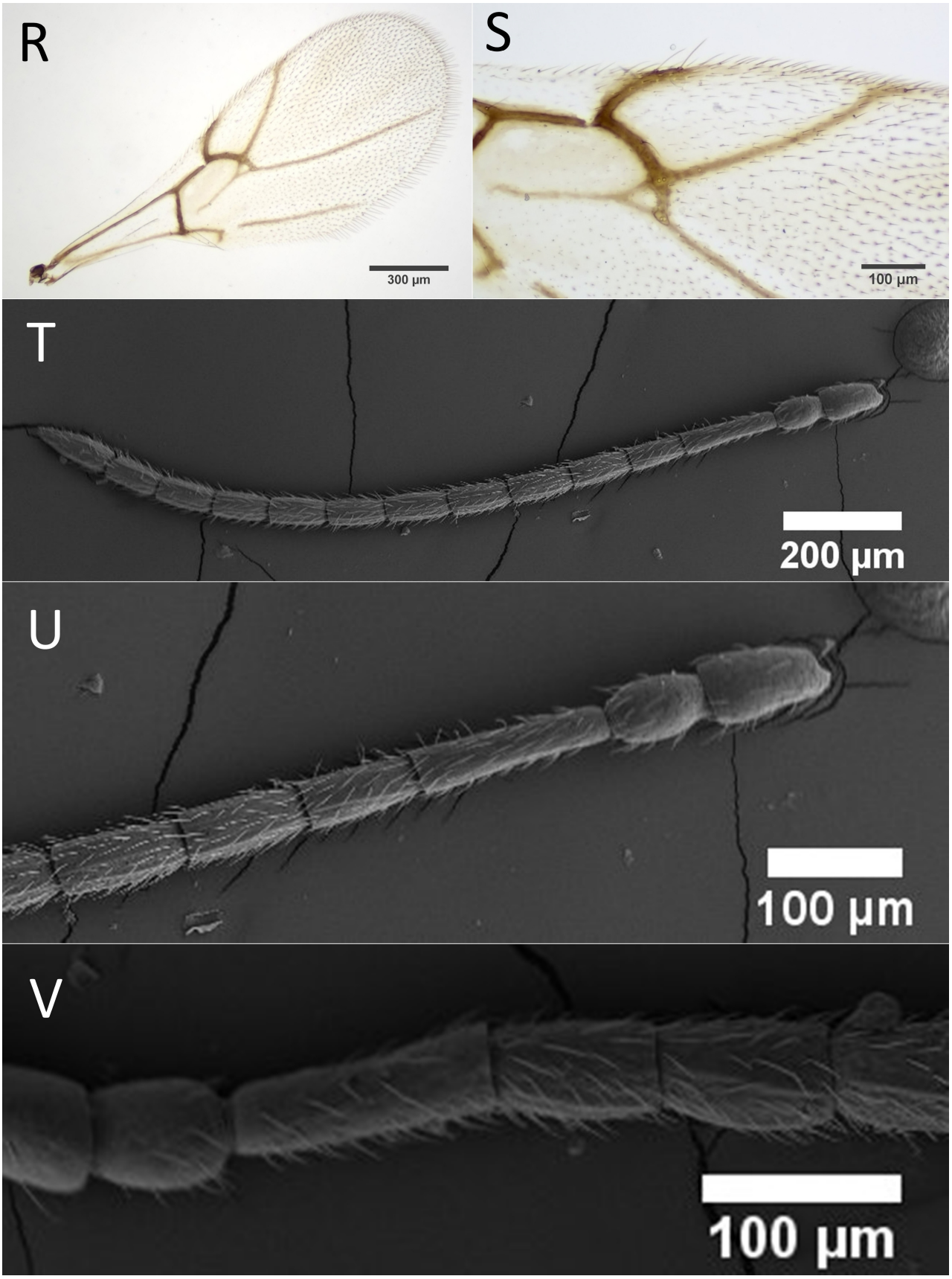

FIGURE 12. *Phanacis dobrogicus* sp. n. (♀): **R**, forewing; **S**, radial cell; **T**, **U**, female antenna; **V**, male antenna, pedicel + F1–F3.

Diagnosis. The new species together with *Phanacis rufipes* Ionescu & Roman, 1959 and *Phanacis lusitanica* Tavares, 1904 form a group of species that develop in galls formed on herbaceous plants of the genus *Crepis* (Asteraceae). This species resembles *P. rufipes*, but differs in the following characters: POL 2.2 X as long as OOL and 4.5 X as diameter of lateral ocellus; F1, the longest flagellomere of antenna, 4.5 X longer than broad, almost equal in length with F2+F3, also F1 1.8 X longer than pedicel and 1.75 X longer than F2; median mesoscutal line evidence on 1/4 of length of scutum; forewing exceeds the body length by a distance equal to metasoma length; radial cell 2.8 X longer than wide; 2r curved; scutellar fovea large, deep, transversely; mesopleuron partially rugulose-striated centrally; galls formed in basal leaves of *Crepis foetida* subsp. *rhoeadifolia*, while in *P. rufipes*: POL 1.6 X as long as OOL and approx. 3.0 X as diameter of lateral ocellus; F1 1.3 X longer than F2; median mesoscutal line visible in the posterior third of the mesoscutum; forewings as long as body length; radial cell approx. 2.5 X longer than wide; 2r angled; scutellar fovea small and oval; mesopleuron irregularly coriaceous-rugose, without visible reticulation; galls formed in stem of *Crepis pulchra* L. Also, resembles *P. lusitanica*, from which it is still differentiated by: antenna 14 antennomeres in both sexes (female 13, male 14 antennomeres in *P. lusitanica*); radial cell partially closed, R1 reaches anterior margin and extend a little over 1/3 of the length of radial cell, areola present (radial cell opened, R1 very short, does not reach the anterior margin of the wing, areolat absent in *P. lusitanica*), Rs+M distinct, extends beyond half distance between areola and basalis (Rs+M indistinct, sometimes its pigmentation is completely absent in *P. lusitanica*); galls into stem of *Crepis vesicaria* L.

There are sufficient differences in morphology and biology confirming the delimitation of the new species. In addition, the association with the host plant as well as the gall type, clearly separate this new species from the other known *Phanacis* species.

Description.

FEMALE (holotype).

Body length: 1.3–1.8 mm.

Colour: glossy black body; head and mesosoma black, antennae brown in colour, legs yellowish, metasoma chestnut to brown, hypopygium yellowish.

Head (Fig. 9A–C): seen dorsally, slightly exceeds the width of the mesosoma; 1.4 X wider than high, in frontal view, 2.2 X broader than long , seen from behind; frons, interocellar area and vertex fine coriaceous; very few white setae, especially on lower face and vertex; malar space 0.7 X as long as height of compound eye, with fine striae radiating from clypeus; transfacial distance 1.5 X as long as height of eye; diameter of antennal torulus 1.9 X as long as distance between them and 0.86 X as long as distance between torulus and eye margin; lower face reticulated, with sparse, strong striae radiating from clypeus, directed towards antennal sockets and lower margin of eye, without touching them; the epistomal sulcus, clypeo-pleurostomal line and tentorial pits distinct; clypeus rectangular (1.5 X as wide as heigh) indistinct coriaceous, not project over mandibles; POL 2.2 X as long as OOL, 2.4 X as long as LOL and 4.5 X as diameter of lateral ocellus; ocellar plate indistinctly raised; head, in posterior view, reticulate with very few white setae especially in lower area; gula smooth, not defined by gular sulci that are indistinct.

Antennae (Fig. 12T–V): filiform, composed of 14 antennomeres covered with short, silver-white setae; scapus 1.3 X as long than pedicel; pedicel elongated (1.8 X as long as thick), nearly 2.0 X broader than F1, measuring 1/2 of the length of the first flagellomere; F1 the longest flagellomere of antenna (slightly thicker at the end toward F2 than at the end toward the pedicel) 4.5 X as long than broad, almost equal in length to F2+F3; also, F1 1.8 X as long than pedicel and 1.75 X as long as F2; the following flagellomeres , except F12, are nearly congruent (equal in length) and 2.0 X as long than thick; F12 1.5 X as long than precedent flagellomeres and don't swollen apically; placodeal sensilla, weakly impressed, present on all flagellomeres.

Male antenna similar to female: 14 antennomeres; pedicel of approx. 1.8 X broader than the proximal end of F1; F1 not modified, straight; placodeal sensilla present on all flagellomeres, also weakly printed; all segments, less scapus and pedicel, covered with short, sparsely distributed hairs.

Mesosoma (Fig. 9E–F, 10G–L): convex, slightly high than long, in lateral view. Pronotum dorsally imbricate, laterally reticulate, covered with sparse white setae dorsally, denser on lateral flanks and anterior edge; also, the pronotum, on the dorso-median line, measures 1/3 of distance measured on the outer lateral margin; submedian pronotal pits narrow, elongated, separated by indistinct carina, but united in the median part by a distinct linear groove. Scutum 1.9 X longer than scutellum, uniformly fine coriaceous; notauli complete, well impressed, reaching until pronotum; the median mesoscutal line evident on 1/4 of length of scutum, and continued with indistinct, shallow line, to pronotum; anterior parallel line, superficial impressed, extending to 1/3 of scutum length; parapsidal line

shallow, indistinct, reaching tegula level. Scutellum rounded posteriorly, nearly as wide as long; not overhanging metanotum; coriaceous-reticulate dorsally, rugose on posterior face, with very few setae, especially in laterally; axillula triangular, smooth, only sparse setae on its central area; subaxillular bar smooth, shinning; propodeum with dense, white long setae; lateral propodeal carine nonparallel, slightly convergent anteriorly; the median propodeal area is rugose, provided with a median ridge from which several other ridges and wrinkles start, with numerous long white setae on its surface; lateral propodeal area with dense long setae; metanotal trough densely pubescent; scutellar foveae elongated, separated by a narrow carina, smooth, indistinct delimited posteriorly. Mesopleuron rugose-striate, with rare, long interrupted striae, especially in the central area; the speculum and lower part (apparently smooth) with indistinct, interrupted short striae; mesopleural triangle with dense pubescence in the lower part and smooth, without setae, in the upper half.

Legs (Fig. 12Q): general colour yellowish, except trochanters which are brown-black; all segments, covered with white setae; tibia, especially toward the tarsus, with dense white, erect, linearly arranged setae; tarsal claws without basal lobe, with a few long setae.

Wings (Fig. 12R, S): the front wing exceeds the length of the body by a distance equal to metasoma length; hyaline, covered with a fine pubescence; the anterior margin (in the open area of the radial cell) as well as the apical edge, up to below the median vein, provided with white dense, long, erect cilia; the rest of the edges shortly ciliated; brown veins, well pigmented and defined; radial cell partially closed; Rs touches the frontal edge of the wing and extends a very short distance; R1 slightly arched, reaches anterior margin and extends a little over 1/3 of the length of radial cell; also, radial cell 2.85 X longer than wide and 1.4 X longer than its opening (distance between tip of R1 and tip of Rs); areolet present, slightly larger and more obvious in female than in male; 2r curved; Rs+M extends beyond half the distance between areola and basalis. The hind wing long ciliated starting from the apical edge (tip of the wing) continuing to the proximal one.

FIGURE 13. *Crepis foetida* ssp. *rhoeadifolia* (M.Bieb.) Čelak : host plant (photos by I. Schiopu).

Metasoma (Fig. 11M–O): slightly compressed laterally, in posterior view; 1.24 X as longer than high, in lateral view; light chestnut colour in the antero-dorsal part (in T2) and darken in the back; metasomal T2, antero-laterally, with a long white sparse, scattered setae, which not forming a distinct patch; it is glabrous and shiny, without punctures, like the subsequent tergites and hypopygium; T2 the longest tergite of the metasoma 2.5 X longer than T3, and represent nearly 1/2 of the metasoma length; also, T2+T3 occupy 2/3 of the length of metasoma; prominent

part of the ventral spine short, don't exceeding the length of the hypopygium, covered with long sparse white setae.

Larva (Fig. 11P, 15N–O): apoda; yellowish–white colour.

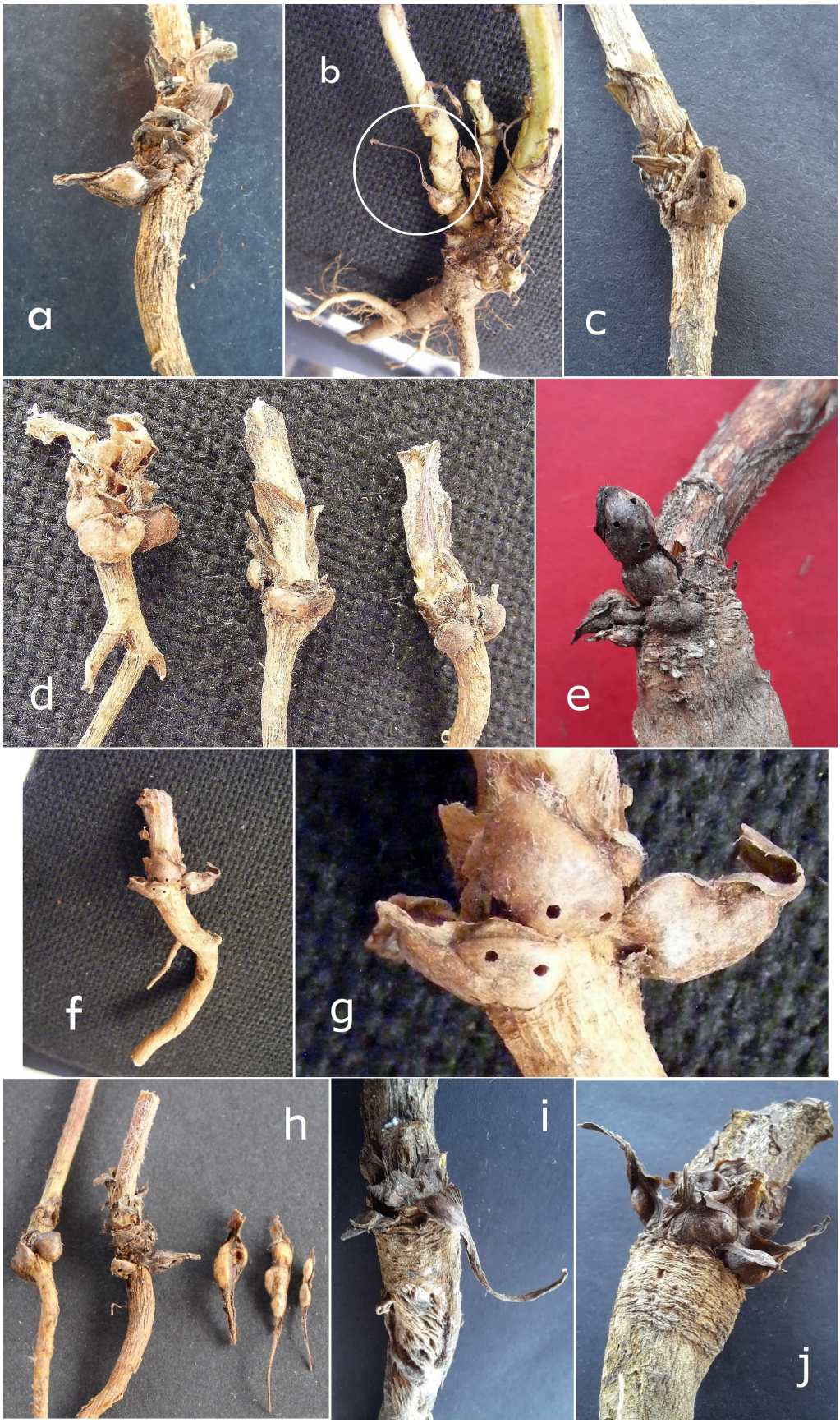

FIGURE 14. *Phanacis dobrogicus* sp. n.: **a–j,** mature galls (photos by I. Schiopu).

FIGURE 15. *Phanacis dobrogicus* sp. n.: **k,** mature galls; **l**, **m**, plurilocular isolated galls; **n, o,** sections through galls showing the larval chambers (photos by I. Schiopu).

Host plant (Fig. 13): *Crepis foetida* subsp. *rhoeadifolia* (M. Bieb.) Čelak. (Asteraceae: Cichorinae). Synonyms: *Crepis rhoeadifolia* M. Bieb.; *Crepis interrupta* Sm.; *Barkhausia rhoeadifolia* (M. Bieb.) Rchb.; *Barkhausia interrupta* (Sm.) Lindl.; *Hieracium rhoeadifolium* (M. Bieb.) Fisch. ex Steud. The plant emits a strong unpleasant, repulsive, stinky smell (hence the name).

Gall (Fig. 14, 15): most species of the genus *Phanacis* develop galls in the stem of the host plants (especially Asteraceae); with few exceptions, galls are formed on the root [e.g. *Ph. carthami* Gussak.] or the flower head [e.g. *Ph. eugeniae* (Diak.)] (Melika, 2006). *Phanacis dobrogicus* **sp. n**. is, for now, the only species of herb gall wasp (from *Phanacis* genus) that develops in plurilocular galls produced exclusively on leaves (in the petiole or midrib). Plurilocular galls appear as small swellings (5–10 mm Φ) and are polymorphic in shape: spherical, fusiform, cylindrical, pyramidal, lenticular-biconvex, etc.; they are glabrous, with a glossy appearance. A gall comprises a group of 2–8 ovoid, unilocular larval chambers (2.5–3 mm Φ) dispersed in a soft, hypertrophied tissue of the petiole or main vein of the basal leaves of the host plant. The galls are formed towards the end of spring, May–June, after oviposition by the females in the petiole or the main rib of the basal leaves, in the area of the root collar of the host plant. The young galls are light green in colour, at maturity in July they turn brown. As a rule, the leaf blade on which the galls have formed dries up and falls, the galls remaining fixed on the stem of the host plant, through the winter, until the spring of the following year. A single multiple gall is formed on a leaf, and between 1–4 multilocular galls can develop on a plant (average number of multiple galls/host plant = 1.8). There is no external morphological indication of the presence of galls on the host plant. The galls are difficult to detect, being masked by the other leaves, they become evident only after the host plant is pulled out of the ground. The galls are aerial or semi-subterranean, present in the petiole (sometimes in the main vein) of the basal leaves that are in contact with the soil. Being a rare gall, the attack frequency is low: F=10–13%. The optimal months for gall collection is during July–August of the development year.

Life cycle: monovoltine species. Reproduction bisexuate-normal (Sex ratio =21♀♀, 1♂); the males being rarer leads us to the hypothesis of a parthenogenetic-telitoca type reproduction. The adults emerge in early spring (March–April) from the galls formed in the preceding year. Females lay eggs, as a rule, in the petiole or in the main vein of the basal leaves of the host plant in spring (May), the larvae develop in summer, over wintering in the larval-pupal stage within the galls that are persistent on the host plants, until the following spring, when the adults emerge.

Associated fauna: parasitoids emerged in July 2011, while the cynipids emerged in the following spring (2012).

Parasitoids

—Hym., Chalcidoidea

Eupelmidae: *Eupelmus* (*Macroneura*) *barai* Fusu, 2017, 2♀♀ 5♂♂

Tetracampidae: *Epiclerus nomocerus* (Masi, 1934), 1♂, known as a parasitoid of leaf-mining larvae of *Phytomyza atricornis* Meigen and *P. ilicis* Curtis (Diptera: Agromyzidae) developing in the leaves of the host plant.

—Hym., Ichneumonoidea

Braconidae: *Bracon* sp. indet., 1♀; most likely a parasitoid on the occasional microlepidopteran larvae feeding on the host plant.

Occasional fauna: Lepidoptera, Tortricidae: *Pammene* sp. indet., 1♀ which, as larvae, use the host plant as a food source.

Geographical distribution: currently, only recorded from Romania (Dobrogea Province: the area between the Danube River, the Danube Delta and the western shore of the Black Sea).

Comments: the genus *Phanacis* Förster, 1860, has historically undergone several systematic classifications: Eady & Quinlan (1963) synonymized *Timaspis* with *Phanacis*; subsequently, Nieves-Aldrey (1994, 2001) re-established *Timaspis*, but Melika (2006) re-established the synonymy. Although the new species described here has morphological characters that match more closely the generic concept of the genus *Timaspis* (mesopleuron rugulose-striate, the median mesoscutal line long-deep at the base of the scutum continuing as a superficial impression to

the anterior margin of the mesoscutum, and notauli complete, reaching pronotum) than that of the genus *Phanacis*; however, we place the new species in *Phanacis* according to the synonymy of Melika (2006).

Acknowledgements

We are grateful as follow: Dr Lucian Fusu and Dr Mircea Mitroiu ("Al. I. Cuza" University, Iaşi, Romania) for determining Eupelmidae and Pteromalidae respectively; Dr Marius Făgăraş ("Ovidius" University, Constanta, Romania) and Biologist-botanist Bogdan Băjenaru (Măcinului Mountains National Park, Romania) for identification of the host plants. We would also like to thank Pamukkale University, Advanced Research Laboratory for the SEM images. We also thank Prof. Juli Pujade-Villar, Barcelona University, (Spain) for the valuable comments made on our study. Special thanks are due to Dr Simon van Noort (Iziko South African Museum, Cape Town, South Africa) for revising the manuscript and his generosity.

References

Ashmead, W.H. (1897) Description of some new genera in the family Cynipidae. *Psyche*, 8, 67–69. https://doi.org/10.1155/1897/60546

Askew, R.R., Plantard, O., Gómez, J.F., Hernandez Nieves, M. & Nieves-Aldrey, J.L. (2006) Catalogue of parasitoids and inquilines in galls of Aylacini, Diplolepidini and Pediaspidini (Hym., Cynipidae) in the West Palaearctic. *Zootaxa*, 1301 (1), 1–60. https://doi.org/10.11646/zootaxa.1301.1.1

Azmaz, M. & Katilmiş, Y. (2020) A new species of herb gall wasp (Cynipidae, Aulacideini, *Aulacidea*) from Turkey. *Zootaxa*, 4747 (2), 378–390. https://doi.org/10.11646/zootaxa.4747.2.9

Azmaz, M. & Katilmiş, Y. (2021) Three new species of herb gall wasps (Hymenoptera: Cynipidae) from Turkey. *European Journal of Taxonomy*, 757, 152–168. https://doi.org/10.5852/ejt.2021.757.1421

Barbotin, F. (1972) Sur quelques Cynipinae nouveaux cycles, nouvelles galles, nouvelles especes. *Marcellia*, 37 (5), 539–551.

Boheman, C.H. (1836) Skandinaviska Pteromaliner. *Kongliga Vetenskaps-Akademiens Handlingar*, 56, 222–259.

Buffington, M.L., Forshage, M., Liljeblad, J., Tang, C.-T. & van Noort, S. (2020) World Cynipoidea (Hymenoptera): A Key to Higher-Level Groups. *Insect Systematics and Diversity*, 4 (4), 1, 1–69. https://doi.org/10.1093/isd/ixaa003

Burks, B.D. (1979) Superfamily Cynipoidea. *In*: Krombein, K.V., Hurd, P.D. Jr., Smith, D.R. & Burks, B.D. (Eds.), *Catalog of Hymenoptera in America North of Mexico. Vol. 1. Symphyta and Apocrita* (*Parasitica*). Smithsonian Institution Press, Washington D.C. pp. 1045–1059.

Csóka, Gy., Stone, G.N. & Melika, G. (2005) Biology, Ecology and Evolution of Gall-inducing Cynipidae. *In*: Raman, A., Schaefer, C.W. & Withers, T.M. (Eds.), *Biology, Ecology and Evolution of Gall-Inducing Arthropods*. Science Publishers, Enfield, New Hampshire, pp. 573–642.

Diakontschuk, L.A. (1988) New and little known gall wasps of the subfamily Cynipinae (Hym., Cynipidae) from Central Asia. *Entomologicheskoye Obozreniye*, 67 (1), 166–181.

Eady, R.D. & Quinlan, J. (1963) *Handbooks for Identification of British Insects: Hymenoptera, Cynipoidea. Key to families and subfamilies and Cynipidae* (*including galls*)*. Vol. 8* (*1a*). Royal Entomological Society, London, 81 pp.

Forsius R. (1921) Cecidiologische Beiträge. *Meddelanden af Societas pro Fauna et Flora Fennica*, 47, 53–55.

Förster, A. (1860) Die zweite Centaurie neuer Hymenoptera. *Verhandlungen naturhistori-schen Verein Preuss. Rheinlande und Westphalen*, 17, 143–146.

Förster, A. (1869) Ueber die Gallwespen. *Verhandlungen der Zoologisch-Botanischen Gesellschaft in Wien*, 19, 325–370.

Fusu, L. (2017) An integrative taxonomic study of European *Eupelmus* (*Macroneura*) (Hymenoptera: Chalcidoidea: Eupelmidae), with a molecular and cytogenetic analysis of *Eupelmus* (*Macroneura*) *vesicularis*: several species hiding under one name for 240 years. *Zoological Journal of Linnean Society*, 181 (3), 519–603. https://doi.org/10.1093/zoolinnean/zlw021

Harris, R. (1979) A glossary of surface sculpturing. *State of California, Department of Food and Agriculture, Occasional Papers in Entomology*, 28, 1–31.

Ionescu, A.M. (1957) *Fauna Republicii Populare Romîne Insecta, Cynipinae. Vol. 9* (*2*). Acad. RPR, Bucuresti, 246 pp. [in Romanian]

Ionescu, M.A. (1973) *Biologia Galelor. Monografie Cecidologica. [Biology of Gall inducers. Monography on Cecidology]*. Academiei Republicii Socialiste Romania Press, Bucuresti, 178 pp. [in Romanian]

Ionescu, A.M. & Roman, N. (1959) Une nouvelle espèce de Cynipides (Hym., Cynipoidea) et une nouvelle zoocécidie: *Timaspis*

rufipes n. sp., *Revue de Biologie, Academia R.P.R*., 9 (2), 123–127.
Jennings, M.T. (2005) *Timaspis lusitanica* Tavares, 1904 (Hym., Cynipidae) and an associated parasitoid *Eurytoma punctatella* Zerova, 1978 (Hym., Eurytomidae), both new to Britain. *Entomologist's Monthly Magazine*, 141, 160.
Kieffer, J.J. (1898) Ueber neue und bekannte Cynipiden. *Wiener Entomologische Zeitung*, 17, 257–267. https://doi.org/10.5962/bhl.part.3133
Kieffer, J.J. (1901) Synopsis des Zoocecidies d'Europe. *Annalles de la Société Entomologiques de France*, 1901, 233–579.
Kieffer, J.J. (1902) Revision du genre *Aulax* et des genres limitrophes, avec quelques notes sur divers autres Cynipides. *Bulletin de la Société d'Histoire Naturelle de la Metz*, 10, 91–97.
Kovalev, O.V. (1982) Cynipid gall-makers of the subfamily Aylacine (stat. n.) (Hym., Cynipidae) and their species described within the family Figitidae. *Trudy Zoologicheskogo Instituta Akademii Nauk SSSR*, 110, 85–93.
Liljeblad, J. & Ronquist, F. (1998) A phylogenetic analysis of higher-level gall wasp relationships (Hymenoptera: Cynipidae). *Systematic Entomology*, 23, 229–252. https://doi.org/10.1046/j.1365-3113.1998.00053.x
Linnaeus, C. (1758) *Systema Naturae per Regna tria Naturae, secundum Classes, Ordines, Genera, Species, cum characteribus, differentiis, synonymis, locis. Tom.1. 10th Edition.* Laurentius Salvius, Holmiae, 553 pp. https://doi.org/10.5962/bhl.title.542
Masi, L. (1934) Descrizione di alcuni Calcididi del Marocco (Hymen.). *Bollettino della Societa Entomologica Italiana*, 66, 97–102.
Melika, G. (2006) Gall Wasps of Ukraine. Cynipidae. *Vestnik Zoologii*, Supplement 21 (1 & 2), 1–300 & 301–644.
Melika, G. & Karimpour, Y. (2012) Herb gallwasp fauna of Iran (Hymenoptera: Cynipidae, Aylacini). *North-Western Journal of Zoology*, 8 (2), 268–277.
Nieves-Aldrey, J.L. (1994) Revision of West-European Genera of the Tribe Aylacini Ashmead (Hymenoptera, Cynipidae). *Journal of Hymenoptera Research*, 3, 175–206.
Nieves-Aldrey, J.L. (2001) *Hymenoptera, Cynipidae*. *In*: Ramos, M.A. (Ed.), *Fauna Iberica. Vol. 16*. Museo Nacional de Ciencias Naturales, CSIC, Madrid, pp. 1–636. [in Spanish]
Nieves-Aldrey, J.L. (2004) A new *Aulacidea* species (Hymenoptera, Cynipidae) from Cabo de Gata Nature Park (Spain) inducing galls on *Launea arborescens*, including description of its terminal instar larva. *Graellsia*, 6 (2), 175–184. https://doi.org/10.3989/graellsia.2004.v60.i2.213
Nieves-Aldrey, J.L. (2005) Notas taxonómicas y biológicas sobre *Timaspis rufipes* Ionescu & Roman (Hymenoptera, Cynipidae), un nuevo cinípido para la fauna Ibérica. *Boletin Entomologica Aragonesa*, 36, 109–114. [in Spanish]
Nieves-Aldrey, J.L. (2012) Two new herb gall wasps from Spain, including the description of a new species of *Aulacidea* Ashmead, 1897 (Hymenoptera, Cynipidae, "Aylacini") inducing galls on *Serratula nudicaulis* L. DC (Asteraceae). *Graellsia*, 68 (2), 325–239. https://doi.org/10.3989/graellsia.2012.v68.077
Quinlan, J. (1968) Cynipinae (Hymenoptera) occuring in *Phlomis* L. *Transactions of the Royal Entomological Society of London*, 120 (13), 275–286. https://doi.org/10.1111/j.1365-2311.1968.tb00339.x
Retzius, A.J. (1783) *Caroli lib. bar. De Geer. Genera et species Insectorum e generosissimi auctoris scriptis*. Apud Siegfried Lebrecht Crusium, Lipsiae, 70 pp.
Ronquist, F. & Nordlander, G. (1989) Skeletal morphology of an archaic cynipoid, *Ibalia rufipes* (Hymenoptera: Ibaliidae). *Entomologica Scandinavica*, Supplement 33, 1–60.
Ronquist, F., Nieves-Aldrey, J.L., Buffington, M.L., Liu, Z., Liljeblad, J. & Nylander, J.A.A. (2015) Phylogeny, Evolution and Classification of Gall Wasps: The Plot Thickens. *PLoS ONE*, 10 (5), 1–40. https://doi.org/10.1371/journal.pone.0123301
Tavakoli, M., Stone, G.N., Pujade-Villar, J. & Melika, G. (2022) New herb gall wasps from Iran (Hymenoptera: Cynipidae). *Zootaxa*, 5155 (3), 301–333. https://doi.org/10.11646/zootaxa.5155.3.1
Tavares, J.S. (1904) Descripção de um Cynipide novo. *Broteria*, 3, 301–302.
Thomson, C.G. (1877) Öfversigt af Sveriges Cynips-Arter. *Opuscula Entomologica*, 8, 732–841.
Thomson, C.G. (1878) *Hymenoptera Scandinaviae. 4. Pteromalus (Svederus) continuatio*.
Typis Expressit Haqv. Ohlsson, Lund, 307 pp.
Walker, F. (1836) Monographia Chalciditum. *Entomological Magazine*, 4, 9–26.
Walsh, B.D. (1869) Galls and their architects. *The American Entomologist*, 2, 70–74.
Weidner, H. (1965) *Phanacis crepidos* sp. nov., eine neue Gallwespe an *Crepis biennis* L. *Entomologische Mitteilungen*, 52 (3), 77–83.
Zerova, M.D. (1978) *Fauna Ukraini (Paraziticini peretinciastokrili: halţidi- evritomidi). Tom. 11. Vip. 9*. Naukova dumka, Kiev, 465S.
Zerova, M.D., Diakontschuk, L.A. & Ermolenko, V.M. (1988) *Gallmaker insects of cultivated and wild plants of the European part of the USSR*. *Hymenoptera*. Naukova dumka, Kiev, 159 pp. [in Russian]
Zerova, M.D. & Seryogina, L.Y. (2009) A review of Palaearctic species of the *Eurytoma cynipsea* group (Hymenoptera, Eurytomidae) with a description of a new species from Iran. *Entomological Review*, 89, 721–729. https://doi.org/10.1134/S0013873809060086