# Species of Aylacini Ashmead, 1903 (Hymenoptera: Cynipidae) inducing galls on *Papaver* L. (Papavaceae) from Romania with description of a new species and notes on parasitoids (Hymenoptera)

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KEY WORDS
Cynipidae, *Iraella*, *Aylax*, *Barbotinia*, *Papaver*, parasitoids, Romania, lectotypifications, new records, new species.

## ABSTRACT
A new species of *Iraella* Nieves-Aldrey, 1994 (Cynipidae Latreille, 1802: Aylacini Ashmead, 1903) is described from South East Romania (Dobrudja province), *Iraella ionescui* n. sp., which induces galls in the base of stems of *Papaver rhoeas* L. The most important diagnostic characteristics for the adults and galls of the new species are discussed and illustrated. In addition, *Aylax papaveris* (Perris, 1840), *Barbotinia oraniensis* (Barbotin, 1964) and *Aylax minor* Hartig, 1840 are also reported from Romania for the first times. The lectotypes of *Barbotinia oraniensis* (Barbotin, 1964) and *Parnips nigripes* (Barbotin, 1964) are designated. A key to all Aylacini species inducing galls on poppies is given. In addition, a list of parasitoids reared from cynipid galls on *Papaver* spp. is provided.

MOTS CLÉS
Cynipidae, *Iraella*, *Aylax*, *Barbotinia*, *Papaver*, parasitoïdes, Roumanie, lectotypifications, signalements nouveaux, espèce nouvelle.

## RÉSUMÉ
*Les espèces roumaines d'Aylacini Ashmead, 1903 (Hymenoptera: Cynipidae) induisant des galles sur* Papaver *L. (Papaveraceae), avec la description d'une espèce nouvelle et des notes sur leurs parasitoïdes (Hymenoptera).* Une nouvelle espèce d'*Iraella* Nieves-Aldrey, 1994 (Cynipidae Latreille, 1802: Aylacini Ashmead, 1903) est décrite de Roumanie (province de Dobroudja); *Iraella ionescui* n. sp. induit des galles dans la base des tiges de *Papaver rhoeas* L. Les caractères diagnosiques les plus importants des adultes et des galles de la nouvelle espèce sont discutés et illustrés. *Aylax papaveris* (Perris, 1840), *Barbotinia oraniensis* (Barbotin, 1964) et *Aylax minor* Hartig, 1840 sont également mentionnées pour la première fois de Roumanie. Les lectotypes de *Barbotinia nigripes* (Barbotin, 1964) et *Parnips nigripes* (Barbotin, 1964) sont désignés. Une clé de toutes les espèces d'Aylacini qui induisent des galles dans les coquelicots est présentée. De plus, une liste des parasitoides obtenus à partir des galles de Cynipides sur *Papaver* spp. est proposée.

## INTRODUCTION

Aylacini Ashmead, 1903 (Hymenoptera: Cynipidae Latreille, 180 is a paraphyletic tribe (Liljeblad & Ronquist 1998; Nylander *et al.* 2004) characterized characterized by its ability to induce galls on herbaceous plants predominantly of the family Asteraceae Bercht. & J. Presl. More than 120 species are known in the Holarctic region, with the majority of species from the Palaearctic (Melika 2006). The western European genera of the tribe were revised by Nieves-Aldrey (1994).

Five species in three Aylacini genera are associated with poppies (*Papaver* spp., Papaveraceae Juss.): *Barbotinia oraniensis* (Barbotin, 1964) and *Aylax minor* Hartig, 1840 (in capsules of *Papaver rhoeas* L., *P. dubium* L., *P. hybridum* L. and *P. argemone* L.), *Aylax papaveris* (Perris, 1840) (in capsules of *P. rhoeas*, *P. dubium*, *P. argemone* L. and *P. somniferum* L.), *Iraella hispanica* Nieves-Aldrey, 2005 (in flower buds of *P. rhoeas* and *P. dubium*) and *Iraella luteipes* (Thomson, 1877) (in stems of *P. somniferum* L., *P. pseudorientale* (Fedde) and *P. bracteatum* Lindl.). The species described herein, *Iraella ionescui* n. sp., induces unilocular (sometimes bi- or trilocular) galls at the base of stems of *P. rhoeas* L., and may occasionally be found on *P. dubium* L.

Ionescu (1957, 1973) and Andriescu (1971) mentioned two species from Romania: *Aylax papaveris* and *Barbotinia oraniensis* (Barbotin 1964). In this study we reported *Aylax minor* for the first time from the country and also provided new data on *Aylax papaveris* and *Barbotinia oraniensis*.

Around 20 species of parasitoids has been mentioned for Aylacini (Askew *et al.* 2006). Only three of these species are known from Romania (Andriescu 1971, 1983): *Eurytoma infracta* Mayr, 1904 (Chalcidoidea: Eurytomidae), *Chalcimerus borceai* Steffan & Andriescu, 1962 (Chalcidoidea: Torymidae) and *Parnips nigripes* (Barbotin, 1964) (Cynipoidea: Figitidae: Parnipinae) and they were all reared from *Barbotinia oraniensis* galls. In this study the biodiversity of parasitoids in poppies galls is mentioned for the first time from Romania.

## MATERIAL AND METHODS

### Methodology

All material included in this study was collected in Dobrudja province in South East of Romania. We have examined the type material of *Barbotinia oraniensis* and *Parnips nigripes* for lectotype designation.

Description of morphological structures follows Liljeblad & Ronquist (1998) and Melika (2006). Venation abbreviations of the forewing are taken from Ronquist & Nordlander (1989). Terminology of the cuticle surface is taken from Harris (1979). The material has been determined using Melika (2006), Melika & Gharaei (2006) and Karimpour *et al.* (2008).

The SEM images were taken using two dissected, gold coated female specimens in the FEI Quanta 200 Environmental SEM at 10 kV. The forewings and galls were photographed with Canon PowerShot SX210 15.

### Abbreviations

*Morphology*

| | |
|---|---|
| Cu1b | short descending branch of the cubital vein; |
| F1-F12 | first and subsequent flagellomeres; |
| LOL | lateral-frontal ocellar distance, distance between lateral and frontal ocelli; |
| OOL | ocellar-ocular distance, distance from the outer edge of a posterior ocellus to inner margin of the compound eye; |
| POL | post-ocellar distance, distance between inner margins of the posterior ocelli; |
| R1 | first branch of the radial vein; |
| Rs | second branch of the radial vein. |

*Institutions*

The type material is deposited in:

| | |
|---|---|
| AMNH | American Museum of Natural History, New York, (J. Carpenter); |
| CAS | California Academy of Sciences, San Francisco, (R. Zuparko); |
| Coll. JP-V | collection J. Pujade Villar provisionally deposited in Universitad de Barcelona (UB) |
| MNHN | Muséum national d'Histoire naturelle, Paris (C. Villemant); |
| PHMBL | Plant Health and Molecular Biology Laboratory, National Food Chain Safety Office (G. Melika); |
| USNM | US National Museum of Natural History, Smithsonian Institution, Washington DC, (M. Buffington). |

## SYSTEMATICS

Family Cynipidae Billberg, 1820
Subfamily Cynipinae Billberg, 1820

Tribe Aylacini Ashmead, 1903

### Remark

Three Aylacini species associated with *Papaver* hosts (*B. oraniensis*, *Aylax minor* and *Aylax papaveris*) have been reported previously in Romania and a new species described here: *I. ionescui* n. sp. The European species associated to poppies can be differentiated according to the following key:

### Key to Aylacini Ashmead, 1903 species inducing galls on poppies

1. Head trapezoid, genae straight in front view; malar space slightly shorter than length of compound eye; clypeus not projected above mandibles ..... *Barbotinia* Nieves-Aldrey, 1994
[Only one species, *B. oraniensis* (Barbotin, 1964), is included which induces galls inside fruits without causing deformation of the capsule, forming individual spherical galls, 3-5 mm in diameter].

— Head oval to rounded, genae curved in front view; malar space shorter than length of compound eye; clypeus projected above mandibles ..... 2

2. Lower face with striae radiating from clypeus, elevated median area without striae; mesopleuron, including speculum, with uniform delicate transverse striae; R1 and Rs veins of forewing reaching front margin..... ..... *Aylax* Hartig, 1840 – 3
— Lower face without striae radiating from clypeus; mesopleuron uniformly entirely reticulate or with posterodorsal part smooth and shiny; R1 and Rs veins of forewing not reaching front margin .... *Iraella* Nieves-Aldrey, 1994 – 4

3. Notauli indistinct or absent in anterior ⅓; scutum coriaceous. Galls inside fruits, not deforming capsules, forming individual and separate galls ..... *A. minor* Hartig, 1840
— Notauli complete; scutum coriaceous to coriaceous-rugosae. Galls inside fruit, usually deforming capsules, forming masses of multilocular galls ..... *A. papaveris* (Perris, 1840)

4. Pronotal plate inconspicuous and sculptured; F1 in female shorter than F2, F1 in males slightly curved; mesopleuron uniformly reticulate; scutellum elongated, delicately coriaceous-reticulate, with scutellar foveae transverse and usually confluent. Radial cell long, at least 3.5 times as long as wide. Galls inconspicuous in stems of poppies ..... *I. luteipes* (Thomson, 1877)
— Pronotal plate conspicuous, smooth; F1 in female as long as F2, F1 in males not modified; posterodorsal part of mesopleuron smooth and shiny; scutellum rugose; foveae small, transverse, and not confluent. Radial cell shorter, around 2.5 times as long as wide. Galls not as above ..... 5

5. F1 without placodeal sensilla; mesoscutum with delicate coriaceous sculpture; mesopleuron with irregular costulate-coriaceous sculpture; medial mesoscutal line inconspicous, very shortly impressed; propodeal carinae narrow and convergent. Galls pluriloculars in aborted flowers..... *I. hispanica* Nieves-Aldrey, 2005
— All flagellomeres with weak placodeal sensilla; mesoscutum with strongly coriaceus sculpture; mesopleuron reticulate; medial mesoscutal line extending ⅓ of scutum length; propodeal carinae inconspicuous and divergent. Unilocular galls in enlarged stems of poppies at the base ..... *I. ionescui* n. sp.

## Species from Romania

### Genus *Aylax* Hartig, 1840

### ***Aylax minor*** Hartig, 1840

*Aylax minor* Hartig, 1840: 196.

Distribution. — Species present in several European countries (Melika 2006) and recently recorded also from Iran (Melika & Karimpour 2012).

Distribution in Romania. — This is the first record of the species from Romania, collected from the following locations: Comorova forest, 05.VII.1994; Hagieni Natural Reserve 11.VII.1994; Comana-village 20.VII.1995; Fantanita Murfatlar Natural Reserve, 06.VII.1996; Negru Voda-forest 30.VI.1997; Dumbraveni forest 10.VII.2000; Esechioi forest 15.VII.2005; Canaraua Fetii-Natural Reserve 20.VII.2010; Valu lui Traian-Natural Reserve, 01.VIII.2012. All localities are in Dobrudja Province in South-East of Romania. Host plant species in Romania includes *P. rhoeas* L. and *P. dubium* L.

Galls. — Galls (Fig. 4C) irregularly rounded (2-3 mm in diameter), light yellow, forming numerous individual chambers inside capsules of puppies (mainly in *P. rhoeas* and *P. dubium*), attached to septa of the fruit capsule, originated by the transformation of the seeds. Poppy capsules are not deformed externally, so its presence is not visible from outside.

Comments. — Adults are very similar to *A. papaveris*, the two species can only be recognized based on slight morphological differences, for this reason Eady & Quinlan (1963) questioned its differences. *Aylax minor* has notauli indistinct in the anterior ⅓, sometimes a very few impressions is present in anterior ⅓ (complete in *A. papaveris*), scutum only coriaceous (coriaceous usually with some weak rugosity in *A. papaveris*) and scapus + pedicellum usually lighter than flagellum (uniformly colored *A. papaveris*).

Life cycle. — Galls start to develop in spring, mature in May to June; adults emerge from capsules next spring. The life history of the species has been accurately studied by Folliot (1964).

### ***Aylax papaveris*** (Perris, 1840)

*Diplolepis papaveris* Perris, 1840: 95.

Distribution. — Species present in several European countries (Melika 2006) and recently also reported from Iran (Melika & Karimpour, 2012).

Distrution in Romania. — *A. papaveris* was reported from Romania by Ionescu (1957, 1973) in Geoagiu (Hunedoara County) on *P. dubium* and *P. rhoeas* rarely *P. argemone*, and is herein collected in Dobrudja province, South-East of Romania in the following locations: Comana Village, 25.VI.1995; Comorova forest, 29.VI.1997; Hagieni Natural Reserve, 05.VII.1998; Negru Voda forest, 30.06.1999; Eforie – Black Sea coast, 20.VII.2000; Cheia Natural Reserve, 27.VIII.2005; Horia forest, 25.VII.2011.

Galls. — Fused galls (Fig. 4B) light yellow, forming irregular oval or globular masses highly variable in size, including a few dozen larval chambers arranged perpendicularly to vertical capsule axis.

The individual gall chambers are originated by the transformation of the septum and seeds, usually causing the deformation and enlargement of the capsules (mainly in *P. rhoeas* and *P. dubium*). Internal septa and seeds disappear.

Comments. — Adults are very similar to *A. minor* (see comments above). *Aylax papaveris* has notauli complete, scutum coriaceous usually with some weak rugosity and antennae uniformly coloured.

Life cycle. — Monovoltine species. Biology similar to the previous species.

## Genus *Barbotinia* Nieves-Aldrey, 1994

### ***Barbotinia oraniensis*** (Barbotin, 1964)

*Aylax oraniensis* Barbotin, 1964: 152.

Type material. — **Lectotype** (here designated). ♀ (col. F. Barbotin) with the following labels deposited in coll. JP-V: "Mangin, Oranie, 26.3.62, de capsule de *P. rhoeas*", "*Aylax oraniensis* B. ♂♀", "Lectotype of *Aylax oraniensis* Barbotin, 1964, design. JP-V 2013" (red label), "*Barbotinia oraniensis* (Barbotin) JP-V det." (white label).
**Paralectotypes.** (22 ♂, 47 ♀) deposited in coll. JP-V: Oran, III-IV.1962: 13 ♂, 27 ♀; Boutelis, III.1960: 4 ♂, 5 ♀; Misserghin, III.1962: 3 ♀; Murdjadjo, III-IV.1962: 4 ♂, 8 ♀; Aïn Beida, III.1962: 1 ♂; Mangin, III-IV.1962: 4 ♀.

Type locality. — Mangin (Oran, Algeria) according to F. Barbotin labels.

Distribution. — Mediterranean species described originally from Algeria as *Aylax oraniensis* (Barbotin 1964) and known from France, Romania, Spain, Italia, Croatia (Istria), Ukraine (Crimea only) and Iran (Andriescu 1971, 1983; Nieves-Aldrey 2001; Melika 2006, Melika & Karimpour, 2012; Kwast 2012).
In Romania it is known from Agigea Natural Reserve of dune plants and Eforie on the Black Sea coast (Dobrudja province) (Andriescu 1983). Additional specimens of the species sent by Andriescu are deposited in the Barbotin collection: Hagieni Natural Reserve 11.VII.1994, 05.VII.1995; Fantanita Murfatlar Natural Reserve 20.VI.1996, 04.VII.1997; Comorova forest, 03.VII.1998; Comana Village, 24.VII.1999; Sipote forest, 30.VI.2006; Negru Voda forest, 20.VII.2010; Esechioi forest, 25.VII.2011; Canaraua Fetii Natural Reserve, 01.VIII.2012.

Galls. — Spherical galls (Fig. 4A), 3-5 mm in diameter, more or less irregularly shaped, formed inside capsules (mainly in *P. rhoeas* and *P. dubium*), in variable number (usually 1-3), resulting in the hypertrophy of internal tissues, with a meridian axes resulting from the rest of the capsule internal septum. The capsule could be slightly deformed externally but the hypertrophy is usually imperceptible.

Diagnosis. — The genus *Barbotinia* includes a single species and is characterized of having a trapezoidal head, malar space long, antennae 14-segmented in females and 15 in males, mesoscutum coriaceous with piliferous points, notauli complete, medial mesoscutal line extending to ½ length of the mesoscutum, scutellar foveae large, mesopleuron reticulate-carinate, radial cell opened, with R1 not reaching wing margin and metasomal tergite II without anterolateral patch of setae.

Life cycle. — Monovoltine species. Biology similar to the previous species.

## Genus *Iraella* Nieves-Aldrey, 1994

### ***Iraella ionescui*** n. sp.
(Figs 1-3; 4D)

Type material. — **Holotype** Comana-Amzacea (Romania), 10.VI.2012: 1 ♀ (Schiopu col.) Ex *Papaver rhoeas* L. deposited in coll. JP-V.
**Paratypes.** (30 ♂♂, 35 ♀♀): Comorova Forest 44°2'12"N, 28°37'25"E (Constanta County, Dobrudja Province, Romania), Ex. *Papaver rhoeas* L., 15.VI.1996: 7 ♂♂, 7 ♀♀; same data, 10.VI.1996: 2 ♂♂; Comana-Pelinu 43°95'N, 28°4'E (Constanta County, Dobrudja Province, Romania) Ex. *Papaver rhoeas* L, 30.VI.1997: 17 ♂♂, 20 ♀♀; Constanta Port 44°14'N, 28°38'E (Constanta County, Dobrudja Province, Romania), Ex. *Papaver rhoeas* L, 04.VIII.2011: 3 ♂♂, 8 ♀♀; Comana-Amzacea 43°54'N, 28°19'E (Constanta County, Dobrudja Province, Romania) Ex *Papaver rhoeas* L., 17.VI.2012: 1 ♂. Paratypes deposited in coll. JP-V. (15 ♂, 20 ♀), PHMBL (3 ♂, 3 ♀), USNM (3 ♂, 3 ♀), CAS (3 ♂, 3 ♀), AMNH (3 ♂, 3 ♀) and MNHN (3 ♂, 3 ♀).

Type locality. — Comana-Amzacea (Constanta county, Dobrudja province, Romania) situated at UTM coordinates 43°54'N, 28°19'E.

Etymology. — This species is named in honour of Mihail Andrei Ionescu (1900-1988), a Romanian cynipidologist.

Diagnosis. — The new species resembles *I. hispanica*, but differs in the following characters: mesoscutum strongly coriaceous (delicately coriaceous in *I. hispanica*), mesopleuron reticulate (costulate-coriaceous in *I. hispanica*), medial mesoscutal line present (inconspicuous or absent in *I. hispanica*) and galls unilocular located at the base of stems (plurilocular in terminal flowers buds in *I. hispanica*). The new species also resembles *I. luteipes,* but differs from the latter in having pronotal plate smooth and shiny (reticulate in *I. luteipes*), F1 in males similar to F2 (slightly modified in *I. luteipes*), posterodorsal part of mesopleuron smooth and shiny (entirely and uniformly reticulate similar to the scutellum sculpture in *I. luteipes*), elongated with scutellar foveae differentiated (confluent in *I. luteipes*), radial cell around 2.5 times as long as wide (3.5 in *I. luteipes*), stems with galls hypertrophied (unconspicous in *I. luteipes*), and host plants being usually *P. rhoeas* and rarely *P. dubium* (*P. somniferum* as in *I. luteipes*).

Distribution. — South-East Romania, including the Black Sea coast (Dobrudja province).

Biology. — Monovoltine species. Adults emerge in March-May when the host plant *Papaver* spp. is developing. Females lay eggs on poppy stems in April-May. Galls grow rapidly, so can be identified in the first half of May. Full development of galls ends in June-July. Larval stage last about 3-4 months and pupation occurs in October-November. Pupa development takes place in the larval chamber enclosed in a cocoon parchment. Overwintering takes place in gall as adult, whose development is completed sometimes in early December. The galls are synchronous with the other wasp galls from poppy capsules. Optimum time of collection: late June early July of development year. Most prospective parasitoids emerge from galls in June-July the first year and the rest next spring.

Description

*Length*

Females: 2.9-3.0 mm (n=7); males: 2.2-2.7 mm (n=8).

*Coloration*

Black; hypopygium, antennal flagellum and legs brown (femur, trochanter and coxa partially black).

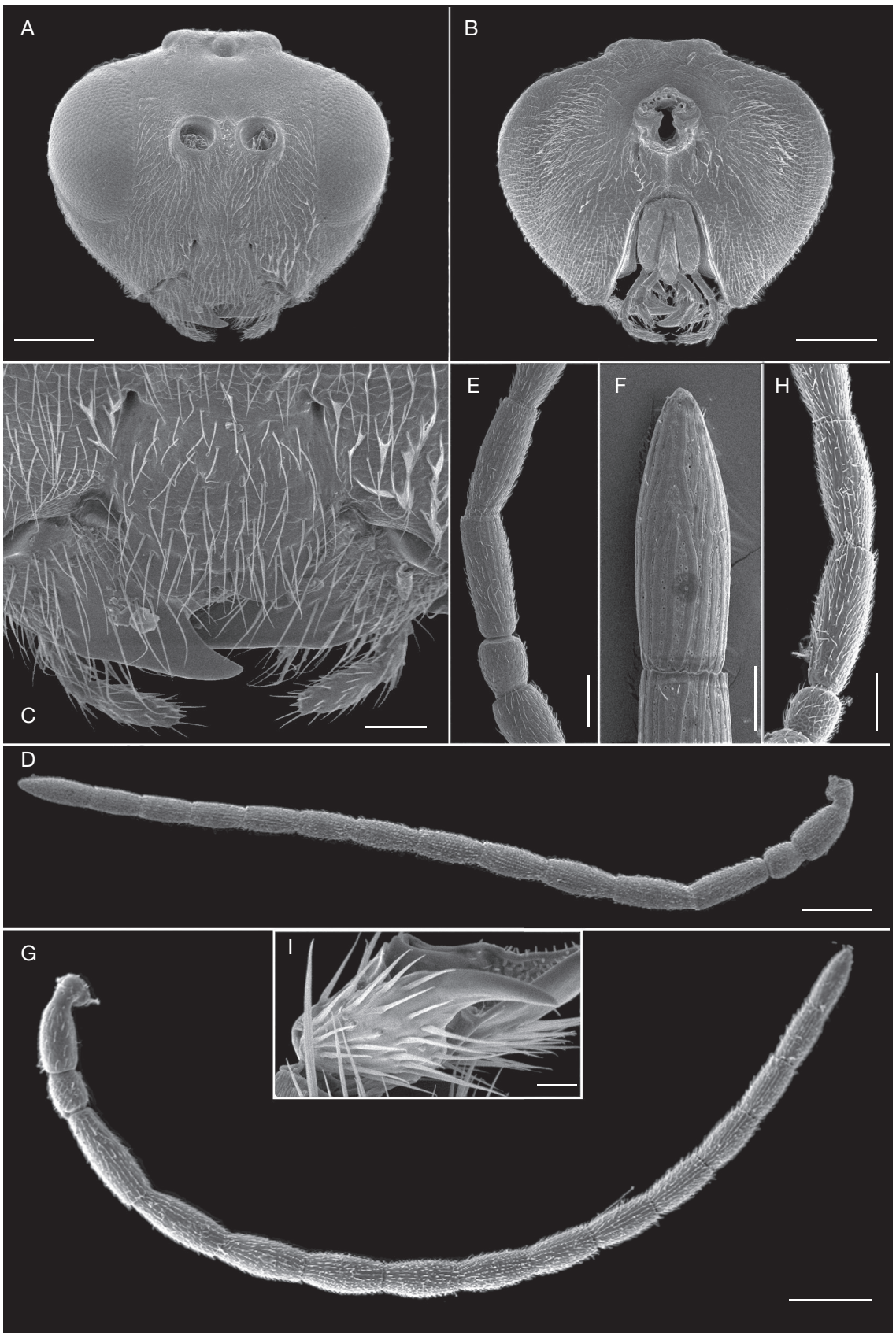


Fig. 1. — *Iraella ionescui* n. sp.: **A**, female head in frontal view; **B**, female head in posterior view; **C**, detail of clypeus; **D**, female antenna; **E**, detail of pecidellum + F1-F2 segments of female antenna; **F**, detail F12 of female antenna; **G**, male antenna; **H**, detail of pecidellum + F1 – F2 segments of male antenna; **I**, tarsal claws. Scales bars: A, B, D, G, 200 µm; C, F, 50 µm; E, H, 100 µm; I, 10 µm.

*Head (Figs 1A, B; 2A-C)*
Head in dorsal view slightly more than twice as wide as long. In anterior view oval; 1.3 times as broad as high; lower face pubescent and with uniform coriarious sculpture; facial striae radiating from clypeus completely lacking. Upper face and vertex glabrous and more delicately sculptured than lower face. POL:OOL:OCO equal to 2.7:1.8:1.1 and related to ratio of diameter of lateral ocellus 0.8. Ocellar plate distinctly raised. Lateral margin of gena slightly curved, malar space around 0.45 times the height of compound eye. Clypeus more or less quadrangular, ventrally projecting over mandibles; ventral clypeal margin weakly incised; distance between anterior tentorial pits longer than the distance between epistomal sulcus and ventral margin of clypeus. Anterior tentorial pits conspicuous. Epistomal sulcus and clypeo-pleurostomal lines impressed, well-marked. Antennal toruli located at mid height of compound eye; distance between antennal rim and compound eye 0.8 times as wide as width of antennal socket including rim. Occiput pubescent, with rugulose sculpture, without occipital carina; some weak irregular transverse rugae present above occipital foramen.

*Antennae*
Female antenna (Fig. 1D-F) thin and elongate; 0.9 times as long as body, with 14 antennomeres; flagellum not broadening apically; placodeal sensilla present on all flagellomeres, weakly impressed; antennal formula: 5 : 3 × 2.5 : 7 × 2.5 : 7 : 6 : 6 : 6 : 5 : 5 : 4.5 : 4.5 : 4 : 4 : 7. Male antenna (Fig. 1G-H) 1.1 times as long as body with 15 antennomeres; F1 not modified, staright; placodeal sensilla on all flagellomeres, weakly impressed; antennal formula: 5 : 3 × 2.25 : 7.5 × 2.25. 7 : 6 : 5 : 5 : 5 : 5 : 5. 5 : 4.5 : 4.5 : 5.5 : 5.

*Mesosoma (Figs 2C, D; 3A-D)*
In lateral view convex dorsally, slightly longer than high. Dorsal pronotal margin concave in anterior view. Admedian pronotal depressions transversely oval, deep, open laterally, broadly separated medially by a distance as long as admedian depression length. Pronotal plate rectangular defined, hairless and without sculpture. Lateral surface of pronotum weakly coriarious; its dorsal and ventral parts with moderately long and dense pubescence. Mesoscutum 1.2 times as wide as long and 1.7 times as long as scutellum length; with strongly coriaceous sculpture; sparsely pubescent. Median mesoscutal impression distinct in posterior ⅓ of mesoscutum. Notauli complete; narrower and shallower anteriorly, broader, deeper and slightly convergent in posterior third of mesoscutum. Anterior parallel lines and parapsidal lines impressed. Mesoscutum and scutellum separated by a distinct transscutal suture. Scutellum rounded dorsally; strongly curved laterally, very slightly overhanging metanotum. Scutellar foveae ovate, deep, separated by a carina with posterior margins defined. Dorsal surface of scutellum strongly rugose. Axillula densely pubescent. Posterodorsal and posterior margins of axillula distinct. Posterior part of axillular strip extended dorsally. Mesopleuron uniformly reticulate without carinae, posterodorsal part of mesopleuron smooth and shiny, pubescent in lower half. Mesopleural triangle distinctly impressed and densely pubescent, with dorsal and ventral margins clearly marked. Metascutellum conspicuously constricted medially. Bar ventral to metanotal trough almost completely smooth; dorsal bar sculptured and pubescent. Metanotal trough narrow and densely pubescent. Metapleural sulcus slightly above of the mid-height of mesopleuron. Lateral propodeal carinae very weakly impressed, slightly divergent inferiorly. Lateral and median propodeal areas densely pubescent, smooth. Nucha relatively short; dorsally smooth.

*Legs*
Tarsal claws simple (Fig. 1I), without a basal lobe but broad basally, with a few long setae.

*Forewing (Fig. 2E)*
Slightly longer than body, mostly hyaline, except slight infuscation around 2r, R1, R1 + S and M. Radial cell open along anterior margin, 2.5 times as long as wide. Rs and 2r curved. Areolet usually present. Cilia along apical margin short.

*Metasoma*
Female metasoma (Fig. 3E-G). In lateral view 1.4 times as long as high. Third abdominal tergum covering about half of metasoma, 3.2 times as long as fourth tergum; anteromedial area of third abdominal tergum with sparse setae but not forming a distinct patch. Fourth to seventh terga smooth, bare, with sparse micropunctures. Ventral spine of hypopygium with sparse micropunctures; projecting part short, longer than basal height of spine; ventrally with two double rows of short hairs.

*Host plant*
*Papaver rhoeas* L. rarely *P. dubium* L.

*Gall (Fig. 4D)*
Unilocular galls are formed in the host plant stem at the base next to the roots (Fig. 4D) difficult to be seen and causing lateral or central deformation of the stem of puppies. The light green colored galls at early development will become yellow-brown as they mature. Most of the time galls are simple (monolocular), but bi- or trilocular galls may be formed by conglomeration of simple galls. Simple galls have an average diameter of approx. 4-5 mm and the multilocular galls about 10 mm. Host plant tissue with hypertrophy, galls are spherical or ovoid, covered with abundant silvery-white hair pilosity. Inside a gall was a simple larval chamber with no inside gall. In each larval chamber develops a single larva. Gall presence often inhibits the development of the host plant, giving it a stunt appearance. Sometimes plants with galls only reach a height of 4-5 cm. The galls are integral and they remain on the host plant until next spring when adults emerge.

Comments
Some *Aulacidea* species as *A. pilosellae* (Kieffer, 1901), *A. scorzonerae* (Giraud, 1859) and *A. subterminalis* (Niblett, 1946), and *Isocolus ponticus* Dyakonchuk, 1982, can produce galls

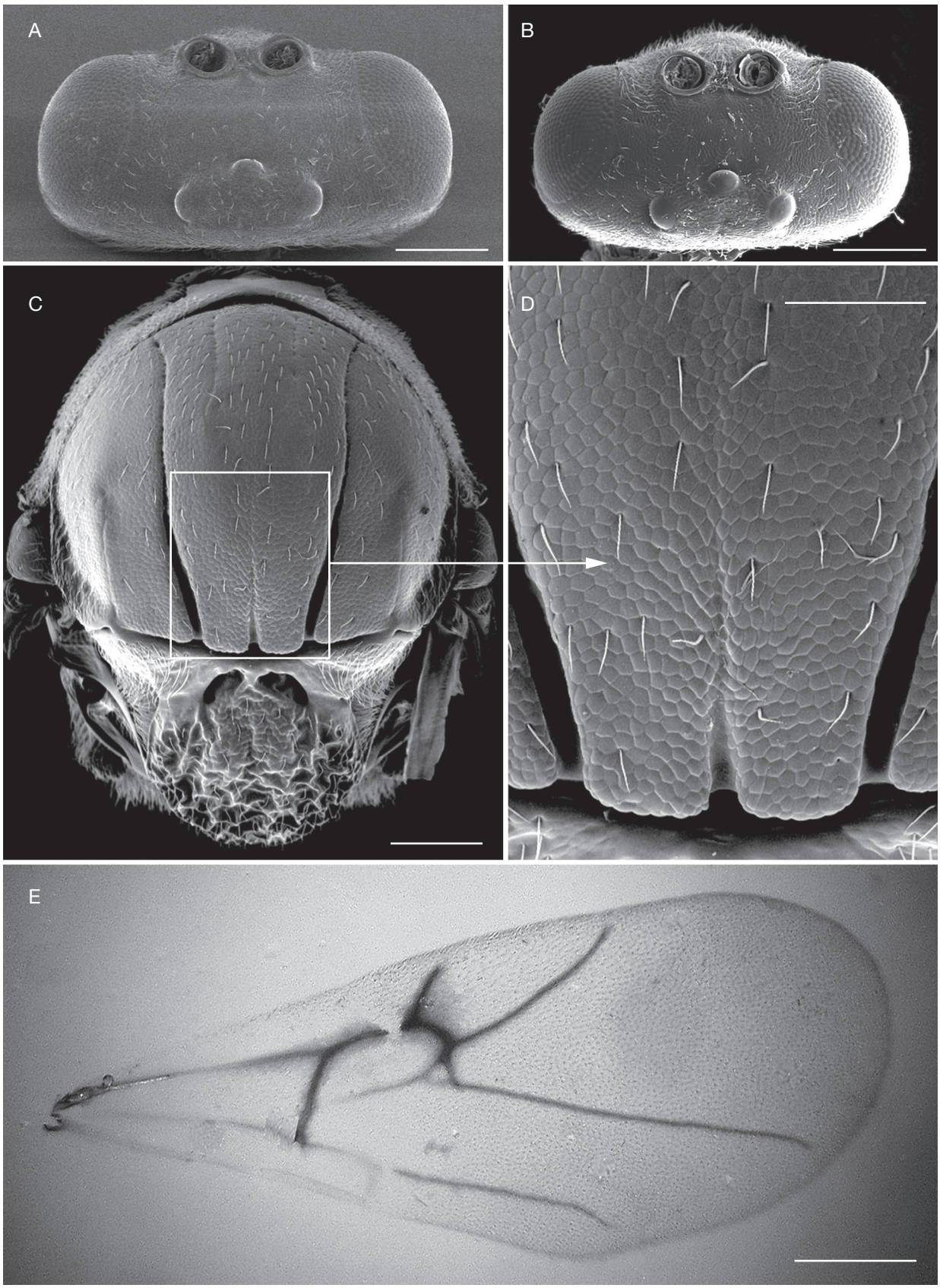


Fig. 2. — *Iraella ionescui* n. sp.: **A**, female head in dorsal view; **B**, male head in dorsal view; **C**, female mesosoma in dorsal view; **D**, sculpture detail; **E**, forewings. Scales bars: A-C, 200 µm; D, 100 µm and E, 0.5 mm.

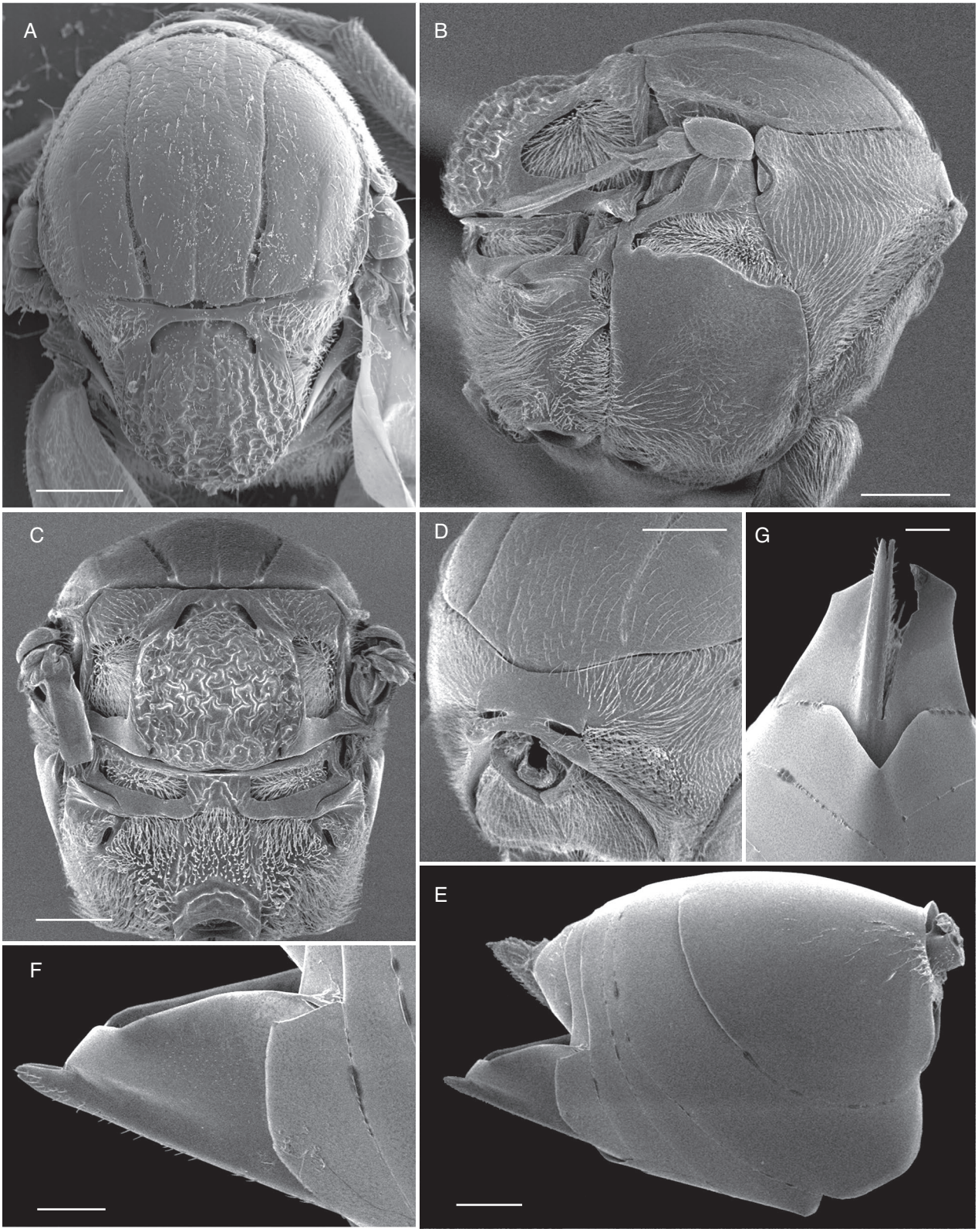


Fig. 3. — *Iraella ionescui* n. sp.: **A**, male mesosoma in dorsal view; **B**, female mesosoma in lateral view; **C**, female mesosoma in posterior view; **D**, detail of pronotum; **E**, metasomal in lateral view; **F**, detail of hypopygium in lateral view; **G**, ventral spine and hypopygium in ventral view. Scale bars: A-E, 200 µm; F, G, 100 µm.


Fig. 4. — Galls of: **A**, *Barbotinia oraniensis* (Barbotin, 1964); **B**, *Aylax papaveris* (Perris, 1840); **C**, *A. minor* Hartig, 1840; **D**, *Iraella ionescui* n. sp.

in two different organs of host plant (leaves and midrib or flower head and stem). In all these cases the galls are similar and the adults identical. The species morphologically similar to *I. ionescui* n. sp. is *I. hispanica*, nevertheless, the galls of this new species are invariably unilocular and always found at the stem base whereas galls made by *I. hispanica* are plurilocular in terminal flowers buds. So far, no galls made by *Iraela* species, nor galls collected in puppies, have different morphology although these species have been abundantly collected in all European and circum-Mediterranean regions. This further support *I. ionescui* n. sp. as a new species, rather than being conspecific with *I. hispanica* support.

### Parasitoids inducing galls on *Papaver*

According to Askew *et al.* (2006) a total of 20 species of parasitoids are associated with the cynipid galls on *Papaver* (Table 1), one species belongs to Figitidae (*Parnips nigripes*) while the rest are Chalcidoidea.

*Parnips nigripes* was originally described as a gall wasp in the *Aulacidea* genus (Barbotin 1964). Although Ronquist (1994) considered this species to be a figitoid inquiline, Ronquist & Nieves-Aldrey (2001) concluded that *Aulacidea nigripes* is neither a gall inducer nor a phytophagous inquiline; rather it is a koinobiont parasitoid of *Barbotinia oraniensis*. Based on its phylogenetic position, Ronquist & Nieves-Aldrey 2001

Table 1. — Parasitoids associated to Aylacini Ashmead, 1903 species in *Papaver* galls according to Askew *et al.* (2006): **AD**, Andorra; **AL**, Algeria; **AT**, Austria; **BG**, Bulgaria; **DE**, Germany; **ES**, Spain; **FR**, France; **GB**, Great Britain; **GR**, Greece; **HR**, Croatia; **HU**, Hungary; **PT**, Portugal; **RO**, Romania (bold). Symnew record from Romanian fauna or from these galls in Romania. (1) corresponds to *Eupelmus vesicularis* (Retzius, 1783) species "complex A" *sensu* Fusu (2010) and (2) *Eupelmus vesicularis* species "complex B" *sensu* Fusu (2010).

| PARASITOIDS | *Aylax minor* Hartig, 1840 | *Aylax papaveris* (Perris, 1840) | *Barbotinia oraniensis* (Barbotin, 1964) | *Iraella luteipes* (Thomson, 1877) | *Iraella hispanica* Nieves-Aldrey, 2005 | *Iraella ionescui* n. sp. |
|---|---|---|---|---|---|---|
| Figitidae Thomson, 1862 | | | | | | |
| *Parnips nigripes* (Barbotin, 1963) | | | AL, ES, **RO** | | ES | **RO*** |
| Chalcidoidea Latreille, 1817 | | | | | | |
| Eulophidae Westwood, 1829 | | | | | | |
| *Aprostocetus forsteri** (Walker, 1847) | **RO*** | | ES | | | |
| *Aprostocetus* sp. | **RO*** | RO* | | | | |
| *Baryscapus papaveris** Graham, 1991 | FR | ES, FR | ES | | | |
| Eupelmidae Walker, 1833 | | | | | | |
| *Eupelmus aseculatus** (Kañlina, 1981) | | ES | | | | |
| *Eupelmus atropurpureus** Dalman, 1820 | FR, **RO*** | FR | **RO*** | | | **RO*** |
| *Eupelmus microzonus* Förster, 1860 | ES, PT | | ES, **RO*** | ES | | |
| *Eupelmus vesicularis* (Retzius, 1783) | FR, **RO*** | GB | **RO***, 1, 2 | | | **RO***, 1, 2 |
| *Eupelmus sp.* | | RO* | | | | |
| Eurytomidae Walker, 1832 | | | | | | |
| *Eurytoma ?jaceae* Mayr, 1878 | | | | ES | | |
| *Eurytoma cynipsea* Boheman, 1836 | | | | ES | | |
| *Eurytoma infracta* Mayr, 1904 | ES | | ES, **RO** | | | |
| *Eurytoma robusta* Mayr, 1878 | | | **RO*** | | | **RO*** |
| *Eurytoma* sp. | **RO*** | | | | | |
| *Sycophila mellea* Curtis, 1831 | | FR | | | | |
| Ormyridae Förster, 1856 | | | | | | |
| *Ormyrus capsalis* Askew, 1994 | ES, FR | ES, FR | ES | | | |
| *Ormyrus papaveris* (Perris, 1840) | AD, ES, FR, **RO*** | AT, DE, ES, FR, GB, HU, | ES | | | |
| *Ormyrus* sp. | | | **RO*** | | | |
| Pteromalidae Dalman, 1820 | | | | | | |
| *Homoporus subniger* (Walker, 1835) | | | | ES | | |
| *Mesopolobus* sp. | **RO*** | | | | | **RO*** |
| *Pteromalus hieracii* (Thomson, 1878) | | GB | | | | |
| *Pteromalus papaveris* Förster, 1841 | FR, GB | DE, GB | **RO*** | | | |
| *Pteromalus* sp. | | | RO* | | | |
| *Trichomalus sp.* nr *tenellus* (Walker, 1834) | | | | ES | | |
| *Trichomalus tenellus* (Walker, 1834) | | | | | | **RO*** |
| Torymidae Walker, 1833 | | | | | | |
| *Chalcimerus borceai* Steffan & Andriescu, 1962 | | ES | AL, BG, ES, GR, **RO** | | | |
| *Glyphomerus tibialis* Förster, 1856 | | | ES | | | |
| *Idiomacromerus mayri* (Wachtl, 1883) | | | **RO*** | | | **RO*** |
| *Idiomacromerus papaveris* Förster, 1856 | AD, ES, FR, **RO*** | ES, FR, HR, HU, **RO*** | ES | | | |
| *Torymus* sp. | | | **RO*** | | | |

established a new genus and subfamily (Parnipinae: *Parnips*) for the species. Nonetheless, these authors did not designate the lectotype in spite of having examined the syntypes in the Barbotin collection. Therefore, we herein designate the lectotype (♀), which is deposited in coll. JP-V and bears the following labels: "Oran *Pap. rhoeas*, iii-60" (white label), "Lectotype of *Aulacidea nigripes* Barbotin, 1964, design. JP-V 2013" (red label), "*Parnips nigripes* (Barbotin) JP-V det." (white label). The paralectotypes are also deposited in JP-V collection (24 ♂, 40 ♀) and bear similar labels as the Lectotype (Assi Bou Nif, III.62: 1 ♂, 1 ♀; Murdjadjo, III.61 & III.62: 14 ♂, 20 ♀; Manguin, III.62: 1 ♂, 2 ♀; Moulay Ismael, III.62: 1 ♂, 1 ♀; Misserghin, III-IV.62: 1 ♂, 10 ♀; Oran, III-60 & II-61: III.62: 1 ♂, 6 ♀.

Nieves-Aldrey (2005) also obtained material of *Parnips* from *Iraella hispanica* and suggested that those specimens belong to a new species of *Parnips* based on a molecular analysis. Since no morphological difference was observed in comparison to *P. nigripes* (Nieves-Aldrey 2005) and he proposed that the specimens obtained from *I. hispanica* could be a sibling species of *P. nigripes*. We have some specimens of *Parnips* from *Iraella ionescui* n. sp. galls, and after examining tens of specimens, also did not found any morphological difference between these specimens and *P. nigripes*.

On *Papaver* galls, the most species of Chalcidoidea obtained are new for the Romanian fauna (Table 1); only two species were known previously (Andriescu 1971): *Eurytoma infracta* Mayr, 1904 and *Chalcimerus borceai* Stefan & Andriescu, 1962, both

on *Barbotinia oraniensis*. Four species are new for the Romanian fauna: *Aprostocetus forsteri* (Walker, 1847) and *Baryscapus papaveris* Graham, 1991 (Eulophidae), *Eupelmus aseculatus* Kañlina, 1981 and *E. atropurpureus* Dalman, 1820 (Eupelmidae), according to Noyes (2012). The material was determined by Andriescu during 1994-2000; unfortunately some species were only determined to genus level: *Aprostocetus* sp. not belonging to *A. forsteri*, *Eurytoma* sp. not belonging to *Eurytoma infracta* and similar to *Eurytoma robusta* Mayr, 1878, *Mesopolobus* sp. and *Torymus* sp., which have never been cited in these galls, *Ormyrus* sp. not belonging to *O. papaveris* (probably belonging to *O. capsalis* Askew, 1994), *Pteromalus* sp. (probably belonging to *P. hieracii* (Thomson, 1878) or *P. papaveris* Förster, 1841). The other twelve species are determined to species (Table 1).

In the new species, *Iraella ionescui* n. sp., the parasitoids obtained are: *Parnips nigripes*, *Eupelmus atropurpureus*, *E. vesicularis* (Retzius, 1783) (*sensu* Fusu 2010), *Eurytoma robusta*, *Idiomacromerus mayri* (Wachtl, 1883), *Mesopolobus* sp. and *Trichomalus tenellus* (Walker, 1834). These results contrast with *I. hispanica* where chacidoids have never been obtained.

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