Introduction

The genus Baryscapus, in the subfamily Tetrastichinae of Eulophidae, is very speciose and biologically diverse, currently containing 116 recognized species (Noyes, 2013), with a cosmopolitan distribution. It is characterized mainly by the body being black, or usually with metallic reflections, without pale markings but tegulae sometimes yellow, submarginal vein usually with 2 or more dorsal setae, gaster with cerical setae short and subequal in length, malar sulcus distinctly curved, and propodeal spiracles with rim wholly exposed, not covered by a flap of the callus. A few species are known with the submarginal vein having only 1 dorsal seta. The European species have been revised by Graham (1991), and classified in two species groups, daira and evonymellae. Since Graham’s revision, a number of species have been described, several in the evonymellae group (Askew, 2007; Askew & Blasco-Zumeta, 1997; Askew & Shaw, 2005; Doğanlar, 1992, 1993; Gates et al., 2005; Kostjukov & Gokhman, 2001; Kostjukov & Tuzlikova, 2002; Nieves-Aldrey & Askew, 2011; Yefremova & Yegorenkova, 2009). 26 species of Baryscapus have been recorded in Spain (Noyes, 2013; López-Sebastian et al., 2003; Ribes, 2011), three described from this country (Askew & Blasco-Zumeta, 1997; Nieves-Aldrey & Askew, 2011; Ribes, 2013). Species of Baryscapus attack a wide variety of insect hosts (Lepidoptera, Hymenoptera, Coleoptera, Diptera, rarely Neuroptera and Coccoidea), as primary endoparasitoids or hyperparasitoids. Only a few species are known as parasitoids of Cecidomyiidae galls, such as B. euphorbiæ Graham, which is likely to be a hyperparasitoid, or B. fumipennis (Girault), but many others are known as parasitoids of Cynipidae galls. Secondary parasitism, either facultative, obligatory or the preferred mode of development, is common in Baryscapus (Askew & Shaw, 2005).

Materials and methods

Specimens of two new species of Baryscapus in the evonymellae group were found in Lleida province, Spain, during a survey of the Chalcidoidea of the region. They emerged from galls of Stefaniola salsolae (Diptera: Cecidomyiidae) of Salsola vermiculata. Baryscapus artemisiae sp.n. was reared from galls of Rhopalomyia ambrosinae (Diptera: Cecidomyiidae) in Artemisia herba-alba. Baryscapus salsolae sp.n. was reared from galls of Stefaniola salsolae (Diptera: Cecidomyiidae) on Salsola vermiculata. Baryscapus artemisiae sp.n. was reared from galls of Rhopalomyia ambrosinae (Diptera: Cecidomyiidae) in Artemisia herba-alba.

Dos especies nuevas de Baryscapus Förster de España (Hymenoptera: Chalcidoidea: Eulophidae)

Resumen: Se describen dos especies nuevas de Baryscapus Förster. Baryscapus salsolae sp.n. se obtuvo emergiendo de agallas de Stefaniola salsolae (Diptera: Cecidomyiidae) en Salsola vermiculata. Baryscapus artemisiae sp.n. se obtuvo emergiendo de agallas de Rhopalomyia ambrosinae (Diptera: Cecidomyiidae) en Artemisia herba-alba.

Palabras clave: Hymenoptera, Chalcidoidea, Eulophidae, Tetrastichinae, Baryscapus, especie nueva, España.

Taxonomy/Taxonomía: Baryscapus salsolae sp.n., Baryscapus artemisiae sp.n.

Abstract: Two new species of Baryscapus Förster are described. Baryscapus salsolae sp.n. was reared from galls of Stefaniola salsolae (Diptera: Cecidomyiidae) on Salsola vermiculata. Baryscapus artemisiae sp.n. was reared from galls of Rhopalomyia ambrosinae (Diptera: Cecidomyiidae) on Artemisia herba-alba.

Key words: Hymenoptera, Chalcidoidea, Eulophidae, Tetrastichinae, Baryscapus, new species, Spain.

BARYSCAPUS FORSTER FROM SPAIN

(CECIDOMYIADA: EULOPHIDAE)

Antoni Ribes

Two new species of Baryscapus Förster from Spain

(Hymenoptera: Chalcidoidea: Eulophidae)

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of each photograph were combined using CombineZ5 software (Alan Hadley, micropics.org.uk). Scanning electron microphotographs (SEM) were taken of HMDS dried and gold coated dissected specimen parts using DSM940A Zeiss equipment, (high vacuum technique), at the “Servei de Microscopía Electrónica de la Universitat de Lleida” (UdL).

Several species of Baryscapus in the evonymellae group and Oomyzus were examined for comparison while preparing the descriptions. These were mostly from the author’s collection and included B. globosiclava Graham, 1991 and B. temboticus (Kostjukov, 1977). Other species were compared on the basis of descriptions and illustrations. Terminology in the description follows Hymenoptera Anatomy Consortium (2013), except for dorsellum (sensu Graham, 1991), used instead of its synonym metascutellum. The following abbreviations are used for morphological terms in the text: F1-F4, funicle segments 1-4; C1-C3, club segments 1-3; POL, posterior ocellar length; OOL, ocular ocellar length; OD, ocellar diameter. Measurements of the mesosoma were taken as follows: length in dorsal or lateral view from pronotal collar to apex of propodeum; width in dorsal view between mesoscutum lateral lobes, excluding tegulae; height in lateral view from lower part of mesopleuron adjacent to mid coxa to dorsal surface of scutellum.

Results and discussion

Baryscapus salsolae sp.n.

DIAGNOSIS. Submarginal vein with only 1 dorsal seta, or with 2 setae in one or both wings, rarely more. Forewing with speculum very large, extending as a broad band below marginal vein up to the stigmal vein, speculum closed below and basal fold setose. Tegulae black, legs with tibiae pale brown to testaceous. In the male antennae scape with ventral plaque short, placed in the upper half near the middle, funicle without whorls of long dark setae, F1 much reduced, transverse.

DESCRIPTION.

Female (figs. 1a, 1c-e, 2): Body length 1.95–2.10 mm. Body (fig. 1a, 1c) with head and mesosoma metallic blackish-bronze, sometimes with purplish or bluish reflections on mesosoma dorsally, and dark bronze reflections on sides of mesosoma. Gaster dorsally purplish-bronze in basal half, and bluish towards apex, with median line distinct, mesoscutum with engraved reticulate-imbricate sculpture, fine and shining, with areoles about 3× as long as long as mesoscutum, strongly convex in both axes, sculpture similar to that of mesoscutum; scutellar submedian lines nearer to sublateral lines than to each other, enclosing a space 2.30–2.42× as long as broad, scutellum with two pairs of setae, the anterior pair slightly beyond the middle, placed nearer to submedian lines than to sublateral lines, their length 0.6–0.7× distance between submedian lines; circular placoid sensillum present between scutellar setae, nearer to anterior setae.

Dorsellum 2.8–3.2× as long as broad, reticulate. Propodeum (fig. 2g) medially 1.15–1.30× as long as dorsellum and 0.28–0.30× as long as scutellum, propodeum width 3.4–3.6× as length at sides, shiny, with obsolescent reticulation, median carina long, callus with 2–3 setae. Propodeal spiracles moderate size, subcircular, separated from hind margin of metanotum by 0.9× their diameter, their rim wholly exposed, spiracles placed in a shallow depression that tapers posteriorly, with the inner edge of the depression running from the spiracles to hind corner of propodeum. Mesosternum slightly convex just in front of trochantinal lobes. Legs of moderate length and thickness, hind coxa 2.1–2.3× as long as broad, with shallow engraved reticulation, hind femur 3.6–4.1× as long as broad. Mesotibia with apical spur 0.7–0.9× as long as basitarsus, basitarsus 0.7–0.8× as long as second tarsomere, fourth tarsomere slightly longer than basitarsus.

Forewing (fig. 1d) 2.0–2.1× as long as broad, venation pale brownish, parastigma and stigma slightly darker brown, venation without decolorized breaks on parastigma and base of stigmal vein. Submarginal vein frequently with only 1 dorsal seta, or with 2 setae on one or both wings, exceptionally more. Costal cell 10–12× as long as broad, 1.25–1.42× as long as marginal vein, its lower surface with a complete row of setae. Marginal vein slightly thickened, 3.10–3.85× as long as stigmal vein, with 9–12 setae on its front edge. Stigmal vein at an angle of about 50° with respect to costal wing margin, thick at base and barely expanding distally, stigma small.
Postmarginal vein a short stub, 0.2–0.4× as long as stigmal vein. Speculum very large, extending as a broad band below marginal vein up to the stigmal vein, closed below or rarely narrowly open below near basal fold, wing surface with moderately sparse pilosity beyond speculum, more densely pilose distally. Basal cell bare, open below, its ventral surface with 3–4 hair bases below submarginal vein, basal fold setose. Forewing marginal cilia 0.23–0.30× as long as stigmal vein. Hindwing subacute at apex, with marginal cilia 0.21–0.25× as long as width of hindwing.

Gaster broadly ovate (fig. 1c), 1.40–1.65× as long as broad, 1.05–1.15× as long as head plus mesosoma, 1.4–1.5× as long and 1.25–1.38× as broad as mesosoma, subacute at apex. Last tergite 2.0–2.8× as broad as long. Cercal setae subequal in length, pale, nearly straight. Ovipositor sheaths very slightly exserted. Hypopygium tip reaching 0.65–0.70× length of gaster. Hypopygium with lateral lobes broad, median lobe less broad, shorter, and narrowing at apex, posteriorly with 1 pair of stronger submedial setae, and usually 3–4 pairs of smaller setae near the middle of lateral lobes, or 5–6 pairs in 2 of 6 samples prepared.

Male (figs. 1b, 1f): Similar to female, differing in antennal and gastral structure. Body (fig. 1b) length 1.5–2.1 mm. Antenna (fig. 1f) with scape very slightly broadened, 3.6–4.2× as long as broad, ventral plaque short, 0.19–0.25× as long as scape, placed in the upper half near the middle. Pedicel plus flagellum 1.0–1.03× as long as breadth of mesoscutum and 0.97–1.02× as long as breadth of head. Funicle with 4 segments, with short suberect setae, without whorls of long dark setae, F1 much reduced, transverse to almost anelliform, 0.50–0.68× as long as broad and 0.28–0.33× as long as F2, F2–F4 elongate, 1.75–1.90×, 1.5–1.7×, and 1.40–1.65× as long as broad respectively. Clava 2.85–3.30× as long as broad, 0.90–1.08× as long as F3+F4. Gaster 1.45–1.70× as long as broad, 1.15–1.43× as long as mesosoma. Male genitilia about 4.5× as long as broad, digitus with one strong spine directed obliquely.
Type Material

Holotype. Spain: Alfés (Lleida), UTM 31T CG00, 1 ♀, reared from Stefanola salsolae (Tavares) galls on Salsola vermiculata, collected 23.v.2013, emerged 24.v.2013 (leg. A. Ribes).

Allotype. Spain: 1 ♂, data as for holotype.


The holotype, allotype and 30 paratypes (20 ♀♀, 10 ♂♂) are deposited in the Museo Nacional de Ciencias Naturales, Madrid, and the remaining 30 paratypes in the author’s collection.

Additional Material. 70 ♀♀ 38 ♂♂, all specimens reared from Stefanola salsolae galls on Salsola vermiculata. Spain, Lleida: Alfés, 50 ♀♀ 27 ♂♂, same data as holotype, except emerging dates 24.v-21.vi.2013; Sarroca, UTM 31T.

ETYMOLOGY. Named after its host plant.

VARIATION. In B. salsolae variation exists in the number of dorsal setae in the submarginal vein. In females, out of 52 specimens examined, 36% have 1 dorsal seta on both wings, 33% have 1 seta on one wing and 2 setae on the other wing, 27% have 2 setae on both forewings, and 4% have 3 or 4 setae on one or both wings. In males proportions of specimens with 1 dorsal seta increased: out of 29 specimens examined 76% have 1 dorsal seta, 17% have 1 seta on one wing and 2 setae on the other wing, and 7% have 2 setae on both wings. With these values combined, the proportion of specimens with 1 seta on one or both wings was 69% in females and 93% in males.

COMMENTS. An unusual feature frequently present in B. salsolae, and always in B. artemisiae s.p.n., described below, is the submarginal vein with only 1 dorsal seta, and this may result in some doubts about their generic placement. Most Tetrasichini species having submarginal vein with 1 dorsal seta belong to other genera, and B. artemisiae and specimens of B. salsolae with 1 seta may run to Oomyzus using the genera keys in Graham (1991). They differ from Oomyzus, however, in the malar sulcus being strongly curved (virtually straight in Oomyzus, except in one species), propodeum shiny, with obsolescent reticulation (often with distinct raised reticulation in Oomyzus), POL more than twice OOL (usually less than twice OOL in Oomyzus), submarginal vein sometimes with 2 setae in one or both wings (1 in Oomyzus, except in one species), and biology (known hosts of Oomyzus are various, but do not include Cecidomyiidae). B. salsolae and B. artemisiae resembles also Dzhanokmenia with the submarginal vein having 1 dorsal seta, and the venation thickened with a short stigmatic vein, but this genus differs in the forewing being without marginal cilia, clypeus with shallow teeth, and antennae inserted below level of inferior margin of eyes. Apart from the character of the number of setae on the submarginal vein, these species much resemble Baryscapus, mainly in the malar sulcus being strongly curved, and in the previously mentioned characters which are typical of Baryscapus but not of Oomyzus. A few species have characters intermediate between both genera and could be provisionally placed in either of them. Within Baryscapus there are only two species, B. embolicus (Kostjukov) and B. globosiclava Graham, having the submarginal vein with only 1 dorsal seta, or sometimes 2 in one wing. B. salsolae resembles these species also in other characters, such as the large speculum and thick venation with short stigmatic vein, B. artemisiae resembles them also in the yellow tegulae, which is unusual in Baryscapus, and both species resemble them in the shape of male antenna, as commented below. So B. salsolae and B. artemisiae are placed here in the genus Baryscapus, within the evonymellae group, where they may form a subgroup together with B. embolicus and B. globosiclava. Some other undescribed species which may also belong to this subgroup have been found in Spain. Additionally perhaps also included in this subgroup are B. luculentus Yefremova & Yegorenkova and B. sana Yefremova & Yegorenkova, described from Yemen (Yefremova & Yegorenkova, 2009). These species have a submarginal vein with 2 dorsal setae and they share with B. embolicus some characters exceptional in Baryscapus such as yellow tegulae and F1 in female reduced, half as long as F2. The male antennae of B. salsolae and B. artemisiae share with these species from Yemen the character of a much reduced, annelliform F1 which, again, is exceptional in Baryscapus (although more frequent in Oomyzus). The males of B. embolicus and B. globosiclava are undescribed, but some specimens collected together with females and which may belong to these species have F1 transverse too. This shape of the male antenna is the only unusual character present simultaneously in all six species Possibly further data from molecular analysis could clarify relationships between this subgroup of species and other species in Baryscapus, Oomyzus and Dzhanokmenia.

Differential Diagnosis. B. salsolae females do not run well in Graham’s (1991) key to species, and as previously stated, the species has some characters in common with B. embolicus and B. globosiclava in couplets 2-3, mainly the submarginal vein frequently with only 1 dorsal seta, the speculum large and extending below the marginal vein up to the stigma, and venation thick with a short stigmatic vein. It differs from B. embolicus in the female antennae with F1, as long as F2 (reduced and 0.5× as long as F2 in B. embolicus). It differs from B. globosiclava in the female clava being more elongate, 3.2–3.7× as long as broad (1.5× in B. globosiclava), and fore coxa and tegulae black (fore coxa and tegulae yellow in B. globosiclava). B. salsolae mostly resembles B. artemisiae s.p.n., their differences discussed in its description below. The specimens of B. salsolae having the submarginal vein with 2 dorsal setae may run to B. servadeii (Domenichini) in Graham’s key, because of the long hypopygium reaching 0.65–0.70× length of gaster, but this species differs in the narrower gaster, more than twice as long as broad (1.40–1.65× as long as broad in B. salsolae), or alternatively it may run to B. spenceri Graham, but this species differs in the forewings with a small speculum, not extending below marginal vein, and the hypopygium shorter. The shape of the depression where the propodeal spiracles are placed, and the circular placoid sensillum on the scutellum, are similar to B. diorhabdivorus Gates & Mryasheva, and several other Baryscapus species. B. diorhabdivorus also has a gaster with a long hypopygium, and male antenna with F1 slightly reduced and transverse, but it differs in the submarginal vein having 3 dorsal setae, gaster more elongate, funicle segments barely longer than broad, and different biology, associated with Coleoptera in Tamarix sp. (Gates et al., 2005). The males also do not run well in Graham’s (1991) keys. Males of B. embolicus and B. globosiclava are unknown, and all other species have a submarginal vein with 2 or more dorsal seta, and antennae with F1 not reduced. As commented before, B. salsolae males resemble B. luculentus
and B. sana in having antennae with F1 much reduced, almost anelliform, and lacking whorls of long dark setae, partly similar also in B. diorhabdivorus, but they differ from males of these species in the submarginal vein having usually 1 dorsal seta (2 in B. luculentus and B. sana, 3 in B. diorhabdivorus), forewings with speculum broad (speculum absent in B. luculentus), F1 transverse but not anelliform (F1 anelliform in B. sana), and F2 1.75–1.90× as long as broad (F2 1.2× as long as broad in B. diorhabdivorus).

Biology. B. salsole has been reared from Stefaniola salsole (Cecidomyiidae) galls on Salsola vermiculata. It was found emerging in a small proportion of gall samples (six of forty samples), and usually in low numbers, except in one sample where it was the dominant parasitoid. Its exact relationship with the host has not been established as a number of other Cecidomyiidae parasitoids emerged from the same gall samples, including Idiogrammerus longicornis Askew, Ko-loptera blascoi Askew, Ormyrus monegricus Askew, Meso-polobus szlenyii Bouček, Platygaister stefaniolae Buhl, etc, similar to the parasitoids found in the Monegros region, where several parasitoids of S. salsole galls were recorded and described (Askew et al., 2001). It could be a secondary parasitoid of Cecidomyiidae, or possibly a secondary parasitoid, as are other species in Baryscapus. The species appears to be bivoltine, with two emergence periods, the first in May–June and the second in September. From galls collected in winter, a first generation emerged 24.v-28.vi. From galls collected in summer, some specimens of another generation emerged 26-29.ix. The sex ratio of the specimens was biased towards females: of 154 specimens emerging from all samples, 60% were females.

Baryscapus artemiasiae sp.n.

Diagnosis. Submarginal vein with only 1 dorsal seta. Forewing with speculum very large, extending as a broad band below marginal vein up to the stigmal vein, speculum open below and basal fold bare. Mid-lobe of mesosoma with adnotaular setae in a single row of only 2–3 setae. Tegulae yellow, legs with tibiae and apex of femora yellow. In the male antennae scape with ventral plaque short, placed in the upper half near the middle, funicle without whorls of long dark setae, F1 much reduced, transverse.

Description. Female (figs. 3a, 3c-e, 4): Body length 1.40–1.65 mm., rarely 1.0–1.2 mm. in dwarfs. Body (fig. 3a, 3c) with head and mesosoma metallic dark bronze, with bluish reflections on head, propodeum, sides of mesosoma, and sometimes dorsum of mesosoma, gaster dorsally dark bronze, sometimes tergites with bluish apical margin or gaster bluish at apical half, gaster ventrally with bluish reflections. Tegulae yellow, sometimes brown at apical margin, posterior part of scapula narrowly yellow. Antennae with scape testaceous to pale brown, paler at base, pedicel brown, flagellum pale brown, sometimes testaceous brown or with clava slightly darker. Legs with coxae coloured as body, anterior and mid trochantellus yellow, femora black at basal two thirds, yellow at apex, the anterior and mid femora entirely yellow on anterior side, only darkened at posterior side, tibiae bright yellow, tarsi testaceous except dark apex.

Head in dorsal view 1.05–1.10× as broad as mesoscutum, and 2.05–2.20× as long as broad, temples 0.21–0.25× as long as eye length. POL 1.75–2.10× OOL, OOL 1.85–2× OD. Eyes 1.30–1.35× as long as broad, separated by 1.32–1.40× their length, with short sparse setae. Head in frontal view (fig. 4a) 1.15–1.20× as broad as high, frons convex at sides, with fine alutaceous sculpture and shallow piliferous punctures, clupeus (fig. 4e) with two rounded and distinctly produced teeth. Occipital surface of head (fig. 4b) with very shallow alutaceous sculpture. Malar space 0.65–0.70× height of eye, malar sulcus in lateral view distinctly curved. Mouth opening 1.45–1.60× as broad as malar space.

Antennae of female (fig. 3e) inserted at level of inferior margin of eyes. Scape 0.83–0.90× height of eye, not reaching anterior ocellus, 4.5–5.3× as long as broad, with few setae on anterior margin. Pedicel plus flagellum 0.90–0.95× as long as breadth of mesoscutum and 0.83–0.90× as long as breadth of head, pedicel 2.0–2.4× as long as broad and 1.55–2.05× as long as F1. Annullar segments 2, the first discoid and the second laminar. Funicle with 3 moderately elongate segments, subequal in length with F2 slightly longer, proximally as stout as pedicel, distally slightly thickening, F3 1.05–1.20× as broad as F1, F1-F3 1.20–1.35×, 1.30–1.65× and 1.10–1.35× as long as broad respectively. Clava 3-segmented, 2.65–3.40× as long as broad, 1.13–1.20× as broad as F3 and 1.30–1.35× as long as F2+F3, clava slightly pointed at apex, apical spine short and indistinct. Funicle segments with short, decumbent pilosity, sensilla in 1 irregular row on each segment.

Mesosoma stout, 1.32–1.40× as long as broad, strongly convex, 1.03–1.06× as broad as high and 1.35–1.50× as long as high, propodeal slope at 45º. Pronotum 0.30–0.35× as long as mesoscutum, with scattered adpressed short setae over its surface and a row of longer setae on posterior margin. Mesoscutum (fig. 4c) 1.6–1.7× as broad as long, midlobe 0.8–0.9× as long as broad, with median line distinct, mesoscutum with engraved reticulate-imbricate sculpture, fine and shining, with areoles about 3× as long as broad. Adnotaular setae in a single row of only 2–3 pale setae. Scutellum transverse (fig. 4d), 1.27–1.40× as broad as long, 0.7× as long as mesoscutum, strongly convex in both axes, sculpture similar to that of mesoscutum: scutellar submedian lines nearer to sublateral lines than to each other, enclosing a space 1.8–2.0× as long as broad; scutellum with two pairs of setae, the anterior pair in the middle, placed slightly nearer to submedian lines than to sublateral lines, their length 0.60–0.65× distance between submedian lines; circular placoid sensillum present between scutellar setae, nearer to anterior setae. Dorsellum 3–3.4× as broad as long, sculptured. Propodeum (fig. 4f) mediolateral short, 1.20–1.43× as long as dorssellum and 0.33–0.40× as long as scutellum, propodeum width 3.0–3.6× as length at sides, shiny, with obsolescent reticulation, median carina low or indistinct, callus with 2(3) setae. Propodeal spiracles small, subcircular, separated from hind margin of metanotum by 0.8–0.9× their diameter, their rim wholly exposed, spiracles placed in a shallow depression that tapers posteriorly, with the inner edge of the depression running from the spiracles to hind corner of propodeum. Mesosternum slightly convex just in front of trochantinal lobes. Legs of moderate length and thickness, hind coxa 2.0–2.25× as long as broad, subvertical, with shallow superficial reticulation, hind femur 3.7–3.8× as long as broad. Mesotibia with apical spur 0.8–0.9× as long as basitarsus, basitarsus 0.8× as long as second tarsomere, fourth tarsomere slightly longer than basitarsus.
Forewing (fig. 3d) 2.0–2.15× as long as broad, venation yellowish to pale brown, parastigma and stigma sometimes pale brown, venation without decolorized breaks on parastigma and base of stigmal vein. Submarginal vein with only 1 dorsal seta. Costal cell 10× as long as broad, 1.15–1.30× as long as marginal vein, its lower surface with a partial row of setae. Marginal vein slightly thickened, 3.3–3.9× as long as stigmal vein, with 6–8 setae on its front edge. Stigmal vein at an angle of about 50° with respect to costal wing margin, thick at base and barely expanding distally, stigma small. Postmarginal vein a short stub, 0.25–0.35× as long as stigmal vein. Speculum very large, extending as a broad band below marginal vein, open below. Basal cell bare, open below, basal fold asetose. Wing surface with sparse, pale and indistinct pilosity beyond speculum, more dark, distinct and densely pilose distally. Forewing marginal cilia long, 0.5× as long as stigmal vein. Hindwing subacute at apex, with marginal cilia 0.35–0.40× as long as width of hindwing.

Gaster ovate (fig. 3c), 1.70–1.85× as long as broad, 1.0–1.15× as long as head plus mesosoma, 1.35–1.55× as long and 1.05–1.20× as broad as mesosoma, acute at apex. Last tergite 1.25–1.70× as broad as long. Cercal setae subequal in length, pale, nearly straight. Ovipositor sheaths very slightly exserted. Hypopygium tip reaching 0.45–0.55× length of gaster. Hypopygium with lateral lobes broad, median lobe less broad, shorter, and narrowing at apex, hypopygium posteriorly with 1 pair of stronger submedial setae, and 0-1 pairs of smaller setae near the middle of lateral lobes, in the 2 samples prepared.

Male (figs. 3b, 3f): Similar to female, differing in antennal and gastral structure, and brown tegulae. Body (fig. 3b) length 1.1–1.2 mm. Antenna (fig. 3f) with scape very slightly broadened, 3.7–3.8× as long as broad, ventral plaque moderate,
Fig. 4. *Baryscapus artemisiae* sp. n., female SEM microphotographs. a) head, frontal view; b) head, posterior view; c) mesoscutum; d) scutellum; e) clypeus and mandibles; f) propodeum. / *Baryscapus artemisiae* sp. n., hembra, microfotografías SEM. a) cabeza, aspecto frontal; b) cabeza, aspecto occipital; c) mesoscutum; d) escutelo; e) clípeo y mandíbulas; f) propodeo.

0.3× as long as scape, placed in the upper half near the middle. Pedicel plus flagellum 0.93–0.95× as long as breadth of mesoscutum and 0.9× as long as breadth of head. Funicle with 4 segments, with short suberect setae, without whorls of long dark setae, F1 much reduced, transverse, 0.70–0.75× as long as broad and 0.44–0.47× as long as F2, F2–F4 moderately elongate, 1.25–1.40×, 1.25–1.35×, and 1.2–1.4× as long as broad respectively. Clava 2.25–2.90× as long as broad, 1.05–1.20× as long as F3+F4. Gaster 1.4–1.5× as long as broad, 1.15–1.25× as long as mesosoma. Male genitalia about 4.5× as long as broad, digitus with one strong spine directed obliquely.

**TYPE MATERIAL.**

**HOLOTYPE.** SPAIN: Torres de Segre, Tossal de Carrasumada (Lleida), UTM 31T BF99, 1 ♀, reared from *Rhopalomyia*...

**Allotype.** SPAIN: 1 ♀, data as for holotype.


The holotype, allotype and 8 paratypes (6 ♀♀, 2 ♂♂) are deposited in the Museo Nacional de Ciencias Naturales, Madrid, and the remaining 10 paratypes in the author’s collection.


**Etymology.** Named after its host plant.

**Differential Diagnosis.** Baryscapus artemisiae females are most similar to B. salsolae, having as common characters the strongly curved malar sulcus, submarginal vein with only 1 dorsal seta (sometimes 2 in B. salsolae), venation thick with short stigmal vein, speculum broad extending below marginal vein up to the stigma, and the propodeum shape. It differs from B. salsolae in the smaller size, forewing with speculum open below and basal fold asetose (speculum closed and basal fold setose in B. salsolae), tegulae and tibiae yellow, femora more extensively yellow (tegulae black, tibiae brown to testaceous, femora mostly dark in B. salsolae), antennae with pedicel plus flagellum 0.83–0.90× as long as breadth of head, F1 and F3 not more than 1.35× as long as broad (pedicel plus flagellum 0.96–0.98× as long as breadth of head, F1 and F3 not less than 1.45× as long as broad in B. salsolae), adnotaular setae in rows of only 2–3 setae (4–5 in B. salsolae), and gaster 1.70–1.85× as long as broad, with hydropygium reaching up to 0.45–0.55× gaster length (gaster 1.40–1.65× as long as broad, much broader than mesosoma, with hydropygium reaching 0.65–0.70× length of gaster in B. salsolae). As for other species of Baryscapus, B. artemisiae resembles also B. embolicus and B. globosiclava in the submarginal vein with only 1 dorsal seta, differing from these species in same way as B. salsolae does, with F1 not reduced and clava not globose. B. artemisiae has also in common with B. globosiclava the yellow tegulae, another unusual character present in few species of Baryscapus. The low number of adnotaular setae is also noteworthy.

The males of B. artemisiae are similar to B. salsolae, differing in the smaller size, forewing with speculum open below and basal fold asetose, tibiae and apex of femora more extensively yellow, antennae shorter, pedicel plus flagellum 0.9× as long as breadth of head, with shorter funicle segments, and F1 0.44–0.47× as long as F2 (pedicel plus flagellum 0.97–1.02× as long as breadth of head, with funicle segments F2-F4 more distinctly elongate, and F1 0.28–0.33× as long as F2 in B. salsolae), and scape with ventral plaque longer, 0.3× as long as scape length (0.20–0.25× in B. salsolae).

**Biology.** B. artemisiae has been reared from Rhopalomyia ambrosinae (Cecidomyiidae) galls on Artemisia herba-alba, present in seven samples. Its exact relationship with the host is not established, as a number of Cecidomyiidae parasitoids emerged from the same gall samples (Torymus canariensis Hedqvist, T. ruschkai Hoffmeyer, Aprostocetus artemisiae (Erdös), A. artemisicola Graham, Platygaster modesta Buhl, etc.), and it could be a primary or possibly a secondary parasitoid of Cecidomyiidae, as are other species in Baryscapus, in a similar way to B. salsolae. The number of generations of this species is not known as it has always been found emerging in spring, between 2-26.v, from galls collected in winter. Perhaps another emergence period exists in autumn, as in B. salsolae. The sex ratio was biased towards females: of 30 specimens obtained from all samples, 77% were females. Another species of Baryscapus was recently described associated with Artemisia herba-alba in the study area (Ribes, 2013), but associated with Tephritidae galls.

The galls of R. ambrosinae Gagné, 2004 (=Navasiella santolinae Tavares, 1919) were recently diagnosed and illustrated in Spain (Medianero et al., 2007), after it was re-established as a valid species. Some of the references of galls on Artemisia herba-alba and its parasitoids in Monengros (Askew et al., 2001), where similar galls were recorded as R. producticeps Kieffer, may refer also to R. ambrosinae. Both kinds of gall are relatively similarly shaped, R. producticeps developing in modified capitula, usually solitary, while R. ambrosinae develops on stem buds, usually in conglomerates and rarely solitary.

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**References**


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