

An illustrated species key of *Enclisis* Townes including descriptions of two new species (Hymenoptera: Ichneumonidae)

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Bordera, S., Kolarov, J. & Mazón, M.: An illustrated species key of *Enclisis* Townes including descriptions of two new species (Hymenoptera: Ichneumonidae). *Insect Syst. Evol.*

Two new species of *Enclisis* Townes, 1970 from Spain and the Balkan Region are described and illustrated: *E. castellana* sp.n. and *E. balcanica* sp.n.. Females of the new species are distinguished between, and from the closest species *E. ornaticeps* by microsculpture of first lateral area of propodeum and mesopleuron, head features and body colour. The male of *E. balcanica* is distinguished from the closest species *E. infernator* and *E. schwarzi* by its head, less transversal, and by a longer second metasomal tergite. The male of *E. castellana* is separated from *E. ruficeps* by its microsculpture on mesopleuron and mesonotum, always on shiny background, and by the position of the subdiscoideus vein, which reach the postnervulus vein in the middle or above the centre. Furthermore, data on phenology of *E. castellana* and a new illustrated key for *Enclisis* species, excluding *E. nigricoxis* and *E. ruficoxis*, is provided. The species *E. alpicola*, *E. ornaticeps* and *E. macilenta* are recorded for the first time from the Bulgarian fauna. *E. infernator* is the first record from Bulgaria and Spain.

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Introduction

Enclisis Townes, 1970 is a Palaearctic and Oriental genus with eleven described species, eight from Europe (Schwarz, 1989; Bordera & Hernández-Rodríguez, 2003), one from China (Schwarz, 1998) and two from India (Jonathan, 1999). The genus belongs to the subtribe Cryptina Townes (Ichneumonidae, Cryptinae, Cryptini) and is characterized, among other features, by having the axillus vein parallel and close to the anal margin of

the hind wing, the mediella strongly arched, the areolet small and pentagonal, the clypeus with a tooth or a blunt angulation on midline, the first metasomal tergite without lateral projections at base and the propodeal spiracle circular.

Species of *Enclisis* parasitize on insects living in wood. They are solitary idiobiont ectoparasitoids of Coleoptera Cerambycidae (Schwarz, 1989) and Cleridae (Schroeder, 1999), also Hymenoptera Chrysididae (Schwarz, 1989) Sphecidae (Schwarz, 1989, Jonaitis, 1990) and Vespidae (Hedwig, 1962, Schwarz & Shaw, 1998). Old host records from Hymenoptera Diprionidae (Györfi, 1943), and Lepidoptera Geometridae (Rudow, 1919), Sesiidae (Meyer 1927) and Tortricidae (Constantineanu & Istrate, 1973), must be questioned and should be confirmed by new data. The species *E. vindex* (Tschek, 1871) has been reported as *Caenocryptus striolatus* Thomson, 1896 overwintering as adult (Rasnitsyn, 1964).

When studying material of Ichneumonidae collected in Spain and in the Balkan Region, two new species of *Enclisis* were found. In this paper they are diagnosed, described and illustrated. Additional data on habitat and phenology of *E. castellana* are also reported.

The European species were revised and keyed by Schwarz (1989). Furthermore, new synonyms were established by Schwarz & Shaw (1998) and Sawoniewicz (2003). Bordera & Hernández-Rodríguez (2003) also modified partially the key of Schwarz (1989) to include two new species from Spain, *Enclisis schwarzi* and *Enclisis dichroma*. Nevertheless, the finding of two additional new species, suggest that a revised key for the *Enclisis* species is strongly needed and new taxonomical characters should be considered in order to determine all species satisfactorily. As in other Cryptinae and Ichneumonidae subfamilies, females are usually more easily distinguished using morphological characters than males, and this is especially patent in *Enclisis*. Microsculpture of mesopleuron and metapleuron, proportions of first flagellar segment and some patterns of coloration used in the revision of Schwarz (1989) are useful taxonomical characters for many species and both sexes, but nevertheless, other, as number of antennal segments, which depends on body size, are variable at specific level. Bordera & Hernández-Rodríguez (2003) introduced new characters for some species, such as the femora index (length/maximum width seen laterally), the ratio between lateral ocellus-compound eye distance and diameter of ocellus, and the ratio between hind ocelli distance and its diameter. This last character is related with the relative width of the head and after studying new material of all

species, we consider it a good taxonomical character. In this paper we report new taxonomical features: the relative position of basis of the subdiscoideus vein at the postnervulus, the microsculpture of the mesonotum, the first lateral area of the propodeum and face, the lateral morphology of the first metasomal tergite, and the relative width of clypeus and form of frons.

Material and Methods

In this study we include material from the Entomological Collection of Alicante University (CEUA), Kolarov Collection (Plovdiv, Bulgaria) and Schwarz Collection (Linz, Austria). Material of the new species were collected mostly by means of Malaise traps placed in Cabañeros National Park, Font Roja Natural Park (Spain), Sikaminia (Lesbos Islands, Greece) and Madjarovo (Bulgaria). No data about collecting method in *Piaria ori* Ritini (Greece) are available. All type material of the new species is preserved in the CEUA (University of Alicante) and in the Kolarov Collection (KC). Type specimens of all species here included have been studied. This type material belongs to the following collections: Laboratory of Entomology of Wageningen University (WU, The Netherlands), Musée Cantonal de Zoologie (MCZ, Lausanne, Switzerland), Museum of Natural History of Wroclaw University (MNHWU, Poland), Museum of Zoology of Lund University (LU, Sweden), Natur-Museum Senckenberg (NMS, Frankfurt, Germany), The Natural History Museum (NHM, London, United Kingdom), Schwarz Collection (SC) and Oberösterreichisches Landes Museum (OLM, Linz, Austria)

The species *E. nigricoxis* Jonathan, 1999 and *E. ruficoxis* Jonathan, 1999 from India, were described from only one female each; males of both species are unknown. Furthermore, Jonathan only mentioned three known species in the genus, *E. macilenta*, *E. alpicola* and *E. vindex* and he neither reported the paper of Schwarz, published ten years before (Schwarz, 1989) which included six species with keys, nor the species *E. chinensis*, described by Schwarz one year before (Schwarz 1998). The descriptions of the Indian species by Jonathan (1999) are not sufficient to conclude whether they are valid taxa or they are synonyms of previously known species. Unfortunately, our attempts to locate and study the type material have been unsuccessful, so we cannot include these species in the key.

Scanning electron microscopy studies were done using a Hitachi S-3000N in low vacuum mode.

Terms used for surface microsculpture of sclerites were adapted from Eady (1968). Terms for ichneumonid morphology were based mostly on Townes (1969), and Gauld & Bolton (1988) for body division.

Results

Key to the world species of *Enclisis* (excluding *E. nigricoxis* and *E. ruficoxis* from India)

FEMALES:

1. Mesopleuron with exception of speculum, and metapleuron completely granulated and mat, without punctures or wrinkles as in male (Fig. 26). Mesosoma mostly red, scutellum black *E. alpicola*
- Meso- and metapleuron distinctly punctate and/or wrinkled (Figs 2-11). Mesosoma mostly black, if red or brownish, scutellum always red too..... 2
2. First flagellar segment more than 5.7 times as long as wide (Figs 12-14); subdiscoideus vein reaching postnervulus about its middle (Figs 40-42); hind tarsus usually with white ring 3
- First flagellar segment usually no more than 5.0 as long as wide; subdiscoideus vein reaching postnervulus clearly below its middle (Figs 43-49); hind tarsus without white ring..... 5
3. Mesopleuron strongly rugose to strigose, sometimes with shallow and sparse punctures (Fig. 4). Only frontal orbita with small yellow spot*E. macilenta*
- Mesopleuron deep, dense and coarsely punctate, usually without any traces of wrinkles (Figs 2, 3). Inner and outer orbits, collar, subtegular ridge and sometimes scutellum and propodeum with yellow marks 4
4. Metasoma black, only hind edge of tergites with a fine yellow marked line. Hind ocelli separated from eye about 1.8 times their diameter. Basal flagellar segments very long and slender; the first one usually 7.0-7.5 as long as its maximum width (Fig. 13).....*E. chinensis*
- Postpetiolus and from second to sixth metasomal segments red. Hind ocelli separated from eye about 1.5-1.6 times their diameter. Basal flagellar segments

- relatively shorter; the first one usually 6.0-6.6 as long as its maximum width (Fig. 12) *E. vindex*
5. First flagellar segment 4.0-4.6 as long as wide; mesonotum with punctures on a mat background; Mesosoma black and lower half of hind coxa red coloured
.....*E. ruficeps*
- First flagellar segment less than 3.7 as long as wide (Figs 15, 16); mesonotum more or less distinctly punctate and polished; mesosoma and hind coxa with not such combination of colour 6
6. Space between hind ocelli 2.2-2.5 their diameter. Hind ocelli separated from eye about 2.1-2.4 times their diameter 7
- Space between hind ocelli 1.2-1.9 their diameter. Hind ocelli separated from eye about 1.4-1.9 times their diameter 8
7. Metasoma black, sometimes reddish on postpetiole and a fine band in the hind edge of second tergite. Hind femur 4.2-4.5 times as long as deep (Fig. 24). First flagellar segment 3.2-3.4 times its maximum width (Fig. 15). *E. infernator*
- Postpetiole, second and third metasomal tergites red. Hind femur 3.6-3.8 times as long as deep (Fig. 25). First flagellar segment 2.7-3.0 times its maximum width (Fig. 16)..... *E. schwarzi*
8. Mesosoma light red. Metasoma black to dark brown, sometimes postpetiole and front and/or hind edge of second tergite reddish. Mesopleuron smooth and shiny, sometimes with very weak and sparse wrinkles and/or punctures (Fig. 8). First metasomal tergite strongly angled in lateral view (Fig. 17).....
..... *E. dichroma*
- Mesosoma black to brown. Metasoma red, sometimes basis of first tergite and from fifth to apex fuscous. Mesopleuron conspicuously wrinkled and/or punctate (Figs 9-11). First metasomal tergite evenly down curved in lateral view (Figs 18, 19)..... 9
9. First lateral area of propodeum sparsely punctate on a shiny background (Fig. 20); mesopleuron strongly punctate and finely strigose on a smooth and shiny background (Fig. 9); hind femur mostly black*Enclisis castellana* **sp. n.**

- First lateral area of propodeum distinctly granulate (Fig. 21); mesopleuron strongly rugose on a granulate background (Figs 10, 11); hind femur red..... 10
- 10. Clypeus 2.2 as wide as long. Frons strongly concave specially in front half (Fig. 22). Mesosoma and all coxae entirely black; head black, only facial and narrow frontal orbits, part of clypeus and mandible red or dark yellow.....
..... *Enclisis balcanica* **sp. n.**
- Clypeus 1.6-1.8 as wide as long. Frons weakly concave or convex (Fig. 23). Mesosoma brownish to black, scutellum always reddish. All legs entirely red coloured*E. ornaticeps*

MALES: (Male of *E. chinensis* is unknown)

1. Mesopleuron with exception of speculum, and metapleuron completely granulate and mat, without punctures (Fig. 26), sometimes only with weak wrinkles. Brachiella always absent. *E. alpicola*
- Meso- and metapleuron distinctly punctate or wrinkled (Figs 27-35). Brachiella usually present, sometimes weakly developed or absent 2
2. Head mainly black, at most with vertical orbits like small spots, frontal orbits, facial orbits partially, clypeus, mandibles and lower outer orbits yellow, rarely all in combination 3
- Head mostly white or yellow. In addition to former marks, face and lower half of temples always widely or entirely white or yellow 6
3. Subdiscoideus vein reaching postnervulus about its middle or above as in female (Fig. 41); hind tarsus usually with white ring*E. macilenta*
- Subdiscoideus vein reaching postnervulus below the middle. Hind tarsus without white ring..... 4
4. Hind ocelli separated from eye about 1.3-1.4 times their diameter. Space between them 1.3-1.4 as long as their diameter. Second metasomal tergite 2.2-2.3 as long as wide..... *E. balcanica* **sp. n.**
- Hind ocelli separated from eye about 1.6-2.4 times their diameter. Space between them 1.6-2.5 their diameter. Second tergite 1.5-2.0 as long as wide 5
5. Sternaulus short and not well defined, usually not reaching 1/2 the length of mesopleuron; behind it, a wide strigose and punctate surface is present (Fig. 29).

- Metapleuron mostly rugose, front part sometimes strigose (Fig. 36). Tegulae usually black to brown*E. infernator*
- Sternaulus long, usually reaching 2/3 the length of mesopleuron; behind it, a convex punctate surface, without wrinkles, is present (Fig. 30). Metapleuron, dense and coarsely punctate in front half and rugose in hind half (Fig. 37). Tegulae usually white..... *E. schwarzi*
6. Mesopleuron except speculum deeply, dense and coarse punctate (Fig. 31). Hind tarsus usually with white ring*E. vindex*
- Mesopleuron not as above (Fig. 32-35). Hind tarsus never with white ring 7
7. Mesosoma mostly reddish (dark specimens at least with mesopleuron and metapleuron clearly red marked). Scutellum and postscutellum always red, sometimes yellowish at apex. *E. dichroma*
- Mesosoma always black only with yellow marks..... 8
8. Face coriaceous without any trace of punctures (Fig. 38). Yellow marks of face and clypeus usually separated from yellow inner orbits by vertical dark bands.....
.....*E. ornaticeps*
- Face shiny or finely granulate but always with more or less distinct punctures (Fig. 39), entirely yellow, if vertical dark bands are present from antennal insertion to clypeal fovea, then the mesopleuron background is always shiny 9
9. Lower half of mesopleuron strigose to rugose and distinctly punctate on a polished background (Fig. 34). Mesonotum weakly punctate on a shiny background. Subdiscoideus vein reaching postnervulus in the middle or above *E. castellana*
- Lower half of mesopleuron weakly strigose and punctate on a coriaceous background (Fig. 35). Mesonotum punctate on a coriaceous background. Subdiscoideus vein reaching postnervulus usually little below the middle.....*E. ruficeps*

***E. alpicola* (Habermehl, 1926).**

Caenocryptus alpicola Habermehl, 1926. Holotypus (♂) examined.

Distribution: - Austria, Germany, Poland, Serbia, United Kingdom.

Material studied: - Bulgaria: Razgradski heights, 19-VI/1-VII-1999, 1 ♂, Malaise trap; Bosnek (Vitoshka Mountain), 15-VI-1999, 1 ♂, entomological net, leg. Ivanov, det. Kolarov

(KC). Type material - Germany: Shrums Vorarlberg, VII-1922, ♂ (Holotypus of *Caenocryptus alpicola* Habermehl, NMS).

Remarks: - In addition to Schwarz description of male (Schwarz, 1989), the following characters have been considered: Hind ocelli separated from eye about 1.5-1.6 times their diameter. Space between them, 1.5-1.6 their diameter. Subdiscoideus vein near middle of postnervulus. Second tergite 1.6 as long as wide. This species is recorded for the first time for the Bulgarian fauna.

***E. macilenta* (Gravenhorst, 1829)**

Cryptus macilentus Gravenhorst, 1829. Holotypus (♂) examined.

Cryptus gracilipes Gravenhorst, 1829. Holotypus (♂).

Cryptus remex Tschek, 1972. Holotypus (♀).

Caenocryptus inflatus Thomson, 1873. Lectotypus (♀) examined.

Cryptus antennatus Bridgman, 1881. Lectotypus (♀).

Caenocryptus laticrus Thomson, 1896. Lectotypus (♀).

Chaeretymma exareolatus Strobl, 1901. Holotypus (♂).

Microcryptus rubi Habermehl, 1921. Holotypus (♂).

Hoplocryptus alboclypeatus Kiss, 1924. Holotypus (♂).

Distribution: - Austria, Belarus, Belgium, Ex-Czechoslovakia, Denmark, Finland, France, Germany, Hungary, Italy (Sicily), Lithuania, Moldova, Netherlands, Norway, Poland, Romania, Sweden, Switzerland, United Kingdom.

Material studied: - Bulgaria: Strandja Mountain Vitanovo, 24-IV-2000, 1 ♂; 30-V-2000, 1 ♀; 8-VI-2000, 1 ♂; 27-VII-2000, 1 ♂; Madjarovo (200m), 19-III-2001, 1 ♂; Vitosha Mountain: Simeonovo (790m), 12-V-1997, 1 ♀; 14-V-1997, 1 ♀, entomological net, leg. Kolarov, det. Kolarov (KC). Type material - Without locality label, ♂ (Holotypus of *Cryptus macilentus* Gravenhorst, MNHWU); Without locality label, ♀ (Lectotypus of *Caenocryptus inflatus* Thomson, LU)

Remarks: - Males of this species have the hind ocelli separated from eye about 1.4-1.6 times their diameter. Space between them, 1.4-1.5 their diameter. Subdiscoideus near or above middle of postnervulus. Second tergite 2-2.2 as long as its maximum width seen from above. The species is recorded for the first time for the Bulgarian fauna.

***E. vindex* (Tschek, 1871)**

Cryptus vindex Tschek, 1871. Holotypus (♀).

Caenocryptus tener Thomson, 1873. Lectotypus (♀).

Caenocryptus pubiventris Thomson, 1873. Lectotypus (♀).

Caenocryptus nubifer Thomson, 1896. Holotypus (♀). Examined.

Caenocryptus striolatus Thomson, 1896. Lectotypus (♀).

Caenocryptus pubiventris var. *nigriventris* Habermehl, 1919. Holotypus (♂).

Distribution: - Austria, Belgium, Bulgaria, Ex-Czechoslovakia, Denmark, Finland, France, Germany, Hungary, Italy, Latvia, Lithuania, Luxembourg, Norway, Poland, Romania, Spain, Sweden, United Kingdom, Ex-Yugoslavia.

Material studied: -Bulgaria: Strandja Mountain, Vitanovo, 25-V-2000, 1 ♀; 8-VI-2000, 1 ♂; 29-IX-2000, 1 ♀, entomological net, leg. Kolarov, det. Kolarov (KC); Spain: Alicante: Carrasqueta Mountain: Venta Carrasqueta, 15-V/4-VI-2002, 2 ♀♀; 17-VI/2-VII-2002, 1 ♀; 2-16-VII-2002, 2 ♂♂, 1 ♀; Mariola Mountain: Foia Ampla, 23-V/5-VI-2001, 1 ♀; Retura, 17-VI/2-VII-2002, 1 ♂, leg. CIBIO, det. Mazón; Moraira, 6-11-III-1990, 1 ♂, leg. Wahis; Montgó, 11-18-III-1992, 1 ♂; 7-15-V-1992, 2 ♀♀; 15-22-V-1992, 1 ♂; 4-11-VI-1992, 6 ♂♂; 19-VI/3-VII-1992, 4 ♂♂, 2 ♀♀, Malaise trap, leg. Luna, det. Bordera (CEUA); Confirmed material: Alicante: Moraira, 6-11-III-1990, Malaise trap, leg. Wahis, det. Horstmann (CEUA) (Bordera & Selfa, 1997). Type material - Sweden: Wml., ♀ (Holotypus of *Caenocryptus nubifer* Thomson, LU)

Remarks:- Males of this species have a wide range of antennal segments, about 26-30, and hind ocelli separated from eye about 1.3 times their diameter, space between them, 1.2 their diameter. Subdiscoideus above middle of postnervulus and second tergite 2.3 as long as wide.

***E. chinensis* Schwarz, 1998**

Enclisis chinensis Schwarz, 1998. Holotypus (♀) and Paratypus examined.

Distribution: - China

Material studied: Type material- China: Yunnan prov., 18-VI/4-VII-1993, Heishui, 35 Km N Lijiang, 27 13N, 100 19 E, lgt. S. Becvar, 2 ♀♀ (Holotypus and Paratypus, OLM).

Remarks:- Male unknown

***E. ruficeps* (Desvignes, 1856)**

Cryptus ruficeps Desvignes, 1856. Typus lost.

Enclisis pulchella Schwarz, 1989. Holotypus (♀) examined.

Distribution: - Bulgaria, United Kingdom, Ex-Yugoslavia.

Material studied:- Bulgaria: Strandja Mountain, Vitanovo, 17-VII-2000, 1 ♂; Konjavska Mountain, IX-1997, 1 ♀, leg. Kolarov; Kresna Gorge, Stara Kresna, 21-IV-1994, 1 ♂, entomological net, leg. Beshkov, det. Kolarov (KC). Type material - United Kingdom: Fownhope, HF, Capler Wood, 2-VI-1936, ♀, E.B.B. & J.F.P., B.M. 1936-398 (Holotypus, NHM).

Remarks: - In males, hind ocelli are separated from eye about 1.4 times their diameter. Space between them, 1.1 their diameter. Subdiscoideus below middle of postnervulus. Second tergite 2.1 as long as wide.

***E. infernator* (Aubert, 1968)**

Caenocryptus infernator Aubert, 1968. Holotypus (♂) examined.

Distribution: - France (Corsica), Italy.

Material studied:- Bulgaria: Madjarovo, 19-29-IV-2000, 3 ♂♂, 1 ♀, Malaise trap; 13-IV-2000, 4 ♂♂, 1 ♀; 24-IV-2000, 2 ♂♂; 2-IV-2001, 8 ♂♂, entomological net, leg. Kolarov, det. Kolarov (KC). Spain: Alicante, Caveta del Buitre, 10-23-IV-2002, 2 ♂♂; 23-IV/15-V-2002, 12 ♂♂; 15-V/4-VI-2002, 1 ♂; 27-VIII/10-IX-2002, 3 ♂♂, leg. CIBIO, det. Mazón (CEUA). Material erroneously designated as paratype of *E. schwarzi*: Alcoi, Font Roja (Alicante, Spain), 21-IV/6-V/1992, 1 ♂; 6-20/V/1992, 2 ♂♂; 20-V/3-VI/1992, 1 ♂ (CEUA). Type material: France (Corsica): Furiani-Tal Kulturland, 250 m., 4-V-1964, ♂, leg. Diller, (Holotypus, MCZ).

Remarks: - In male, antenna with 25-27 segments, hind ocelli separated from eye about 2.1-2.4 times their diameter. Space between them, 2.4 their diameter. Subdiscoideus below middle of postnervulus. Second tergite 1.6-1.7 as long as wide. This species is recorded for the first time for the Bulgarian and Spanish fauna.

***E. schwarzi* Bordera & Hernández-Rodríguez (2003)**

E. schwarzi Bordera & Hernández-Rodríguez (2003). Holotypus (♀) and Paratypus examined.

Distribution:- Spain.

Material studied:- Alicante: Carrasqueta Mountain: Mas de Cano, 10-24-IX-2002, 1 ♂; Menejador, 23-IV/15-V-2002, 2 ♂♂; Venta Carrasqueta, 7-23-V-2001, 1 ♂; 11-26-IX-2001, 1 ♂; 23-IV/15-V-2002, 1 ♂; Mariola Mountain: Caveta del Buitre, 8-23-V-2001, 1 ♀; 30-VIII/11-IX-2001, 5 ♂♂; 11-25-IX-2001, 5 ♂♂; 10-23-IV-2002, 4 ♂♂; 23-IV/15-V-2002, 23 ♂♂, 1 ♀; 27-VIII/10-IX-2002, 5 ♂♂; 10-24-IX-2002, 18 ♂♂; 24-IX/7-X-2002,

21 ♂♂, 1 ♀; 7-21-X-2002, 2 ♂♂; Retura, 30-VIII/11-IX-2001, 1 ♂; 11-25-IX-2001, 1 ♂; 23-IV/15-V-2002, 1 ♂; 10-24-IX-2002, 1 ♂; 24-IX/7-X-2002, 1 ♂, Malaise trap, leg. CIBIO, det. Mazón (CEUA). Type Material - Font Roja, (Alicante, Spain), 6-20-V-1992, 1 ♀, leg. F. Luna. (Holotype, CEUA); 21-IV/6-V-1992, 1 ♂; 6-20-V-1992, 1 ♀, 8 ♂♂ (1 ♂ MNCN, 1 ♂ SC); 20-V/3-VI-1992, 1 ♂; 26-VIII/9-IX-1992, 9 ♂♂; 24-IX/8-X-1992, 1 ♀, 1 ♂; all them leg. F. Luna (Paratypes, CEUA).

Remarks.- Males of *E. schwarzi* and *E. infernator* are very similar. Keys given by Bordera & Hernández-Rodríguez (2003) for distinguish both males are based on the study of only one male of *E. infernator* which was the type. The study of more material of males of *E. infernator* shows that there is an important variability in metasomal coloration as soon as in the index of hind femur. In this paper we have found new characters for separate both males mostly by the development of sternaulus and microsculpture of mesopleuron and metapleuron (Fig. 29, 30, 36, 37). Nevertheless, a detailed revision of type material of *E. schwarzi*, considering these features, has been demonstrated that four paratype males from Font Roja (Alcoi, Alicante, Spain) belong to *E. infernator*.

E. dichroma Bordera & Hernández-Rodríguez (2003)

E. dichroma Bordera & Hernández-Rodríguez (2003). Holotypus (♀) and Paratypes examined.

Distribution: - Spain.

Material studied: - Type Material - Barranco Saraguttillo (Serra, Valencia, Spain), 7-20-IV-1992, 1 ♀, leg. F. Luna (Holotype, CEUA); same locality, 17-24-III-1992, 1 ♂; 24-31-III-1992, 1 ♀, 4 ♂♂; 31-III-7-IV-1992, 1 ♀, 5 ♂♂; 7-20-IV-1992, 6 ♀♀, 14 ♂♂; 20-IV-5-V-1992, 1 ♂; 5-12-V-1992, 1 ♂, all them leg. F. Luna. (Paratypes, CEUA)

E. ornaticeps (Thomson, 1885)

Microcryptus ornaticeps Thomson, 1885. Holotypus (♀).

Hemiteles magnificus Schmiedeknecht, 1905. Holotypus (♀) examined.

Hemiteles eximius Hedwig, 1955. Holotypus (♀).

Caenocryptus meridionator Aubert, 1966. 2 Paratypen.

Aritranis ruforbator (Aubert, 1966). Holotypus (♀).

Distribution: - Austria, Finland, France, Germany, Italy, Poland, Spain, Turkey, Ex-Yugoslavia.

Material studied: - Austria: Ober Österreich: Deisenham bei Wolfsegg a. H., 16-VI-1986, 2 ♂♂; Stallburgalm b. Weyer b. St., 8-VIII-1986, 1 ♂; Zwettl Langzwettl, 7-VIII-1983, 1

♀; Waidring bei Ottnang, 2-IX-1987, 2 ♀♀; Almegg, NE Bad Wimsbah-Neydharting, 48°04'N 13°55'E, 4-VI-2003, 1 ♀, leg. Schwarz; Salzburg, Bad Hofgastein (900), 4-IX-1986, 1 ♂; Salzburg, Badgastein, 24-VI-1987, 1 ♂, leg. Schwarz & Schiffkorn (Col. Schwarz); Bulgaria: Vitosha Mountain: E. Kopitoto (1350m), 29-V/5-VI-1998, 1 ♂; 12-19-VI-1998, 1 ♂, Malaise trap, leg. Ljubomirov (KC); Germany: Bayern, Geisenbrunn (572m), 28-VIII-1964, 2 ♂♂, leg. Kartenhauser, det. Schwarz (SC). Spain: Alicante: Carrasqueta Mountain: Venta Carrasqueta, 30-VII/13-VIII-2002, 1 ♂, Malaise trap, leg. CIBIO, det. Mazón (CEUA); Barcelona: Calders, 28-VII-1990, 1 ♂, entomological net, leg. Schwarz, det. Schwarz (SC); Castellón: Sant Joan de Penyagolosa, 25-VIII-1988, 1 ♂, leg. Bordera (CEUA) (Bordera & Selfa, 1997). Turkey: Ilgaz Mountain: Kastamonu (1850m), 8-IX-2001, 1 ♀, det. Schwarz; Isparta: Eğridir Kasnak meshesi (1450m), 7-VI-2004, 2 ♂♂; 25-VII-2004, 1 ♂, leg. Kolarov, det. Kolarov (KC). Type material - Without locality label, ♀, (Holotypus of *Hemiteles magnificus* Schmiedeknecht, WU).

Remarks: - Males with hind ocelli separated from eye about 1.3 times their diameter. Space between them, 1.1-1.2 their diameter. Subdiscoideus vein reaching postnervulus in a variable position. Second tergite 1.8 as long as wide. This species is recorded for the first time for the Bulgarian fauna.

***Enclisis castellana* sp. n.**

(Figs 9, 18, 20, 34, 39, 47)

Diagnosis.- Female: First flagellar segment 3.5-3.7 as long as wide. Space between hind ocelli 1.5-1.7 their diameter. Hind ocelli separated from eye about 1.4-1.6 times their diameter. Mesonotum with weak and sparse punctures uniformly distributed on a shiny background, their diameter smaller than interspaces. Mesopleuron finely strigose and strongly punctate on a polished background just above the sternaulus (Fig. 9). First lateral area of propodeum weakly punctate on a shiny background (Fig. 20). Subdiscoideus vein reaching postnervulus clearly below its middle (Fig. 47). First metasomal tergite uniformly down curved (seen laterally) (Fig. 18). Mesosoma black. Hind leg with the coxae without its lower half red coloured, femur mostly fuscous and tarsus without white ring. Metasoma red, except petiole and from fifth tergite to apex, which are fuscous. ,

Male: Face shiny or finely coriaceous but always with distinct punctures (Fig. 39). Mesonotum weakly punctate on a shiny background. Mesopleuron mostly strigose to rugose and distinctly punctate on a polished background just above the sternaulus; the upper part polished with very sparse setiferous punctures, with some weak wrinkles

between the speculum and its front part (Fig. 34). Metapleuron rugose and conspicuously punctate. Subdiscoideus vein reaching postnervulus in the middle or above. Head mostly white, usually without two vertical dark bands between face and inner orbits. Mesosoma black, with lightly yellow marks on collar, tegulae, subtegular ridge, scutellum and postscutellum. Hind tarsus without white ring.

Description. - Female: Body length (without ovipositor) 5.0-5.5 mm. Head 0.6-0.7 mm long and 1.1-1.3 mm wide. Mesosoma 1.8-2.0 mm long, 0.8-1.1 mm wide (mesoscutum). Front wings 4.3-4.7 mm long. Petiole 0.9-1.0 mm long. Postpetiole 0.4-0.5 mm long and 0.5-0.6 mm wide. Ovipositor sheaths 2.1-2.4 mm long.

Head: Transverse, 1.8-1.9 times as wide as long, roundly constricted behind the eyes. Temple 0.4 times as long as eye (viewed from above). Vertex and frons with sparse punctures on a finely granulate but shiny background; face more densely punctate on a mostly smooth background, weakly granulate on the central convexity. Temples with small and very sparse setiferous punctures on a smooth and polished background. Malar space strongly granulate, about 1.1 times as wide as basal width of mandible. Clypeus weakly convex and polished, with sparse weak punctures, about 2.0-2.1 times as wide as long, its apical margin somewhat rounded, with sharp lateral edges and a distinct tooth on midline. Lower mandibular tooth clearly longer than upper tooth. Antennae with 23-24 segments; first flagellar segment 3.5-3.7 times as long as wide. Genal carina joining oral carina behind base of mandible at a distance of 0.6-0.7 times the basal width of the mandible. Hind ocelli separated from eye about 1.4-1.6 times their diameter. Space between hind ocelli 1.5-1.7 times their diameter.

Mesosoma: Lateral parts of pronotum weakly strigose on the lower hind half; smooth, shiny and weakly punctate in collar and upper half. Epomia present. Mesoscutum polished, with weak and sparse punctures uniformly distributed, their diameter smaller than interspaces. Notauli deep, reaching about 0.4-0.5 the distance to scutellum. Scutellar groove with small longitudinal carinae. Scutellum smooth and polished, finely and sparse punctate and without lateral carinae. Mesopleuron finely strigose and strongly punctate on a polished background just above the sternaulus; the upper part polished with conspicuous

punctures, with some weak wrinkles between the speculum and its front part. Speculum smooth, polished and completely hairless. Sternaulus nearly right, only strongly distinct on $2/3$ the length of mesopleuron. Metapleuron conspicuously strigose; propodeum with its first lateral area weakly punctate on a shiny background, the rest rugose and somewhat punctate on a polished or finely granulate background. Both of its transverse carinae strong and complete, the apical transverse carina forming a sublateral crest. Propodeal spiracle circular and joining pleural carina. Juxtacoxal carina strongly present at least at the base, its apical part more or less distinct. Ramulus of fore wing absent. Radial cell 3.0-3.2 times as long as its maximum width. Second recurrent vein weakly inclivous or almost vertical, with one wide bulla. Areolet small and pentagonal, strongly convergent towards the front side. Nervulus opposite to basal vein. Subdiscoideus vein reaching postnervulus clearly below its middle, postnervulus strongly inclivous. Nervellus vertical, strongly angular and intercepted a little below the middle. Hind femora 4.3-4.7 times as long as high.

Metasoma: First metasomal tergite weakly and finely granulate with some sparse setiferous punctures in dorsal part, lateral part strongly granulate, somewhat rugose at the base; the postpetiole tending to be smooth and polished, with some strong punctures towards the lateral parts. Median dorsal carinae weak, only present on petiole, becoming obsolescent on the hind half of postpetiole. Postpetiole 1.0-1.2 times as long as its maximum width (measured dorsally); the spiracle only slightly behind the middle. Second and rest of tergites finely coriaceous, with moderately dense setiferous punctures; hind central part of the former with this punctures much more dense. Second metasomal tergite 0.6-0.7 times as long as its maximum width (dorsally measured). Thyridia indistinct. Hind edge of seventh metasomal tergite joining front edge of eighth metasomal tergite by a hyaline wide rounded membrane. Ovipositor slightly upcurved, with nodus and strong teeth on the apex of lower valve; its tip 3.7-4.2 times the maximum height at nodus (Fig. 50). Ovipositor sheaths 1.2-1.4 times as long as the hind tibiae.

Body black. Lower half of temples joining uninterrupted inner orbits, cheeks, clypeus, mandibles (except teeth), scape from below, inner part of front coxa, hind apex of

front and middle femora, ventral part of tibiae and tarsus, second to fourth metasomal segments, lateral edge of postpetiole orange. Front and middle femora except hind apex, dorsal part of tibiae and tarsus, last metasomal segments, distal half of flagellum brown. Antennae with white marks on the 7th -9th flagellar segments. Wings with transverse dark band.

Male: Body length 4.3-6.0 mm. Head 0.5-0.7 mm long and 0.9-1.1 mm wide. Mesosoma 1.4 –1.8 mm long, 0.7-0.9 mm wide (mesoscutum). Front wing 3.5-4.5 mm long. Petiole 0.9-1.2 mm long. Postpetiole 0.4-0.5 mm long and 0.2-0.3 mm wide.

Head: Transverse, 1.8-1.9 times as wide as long. Temple 0.5-0.7 times as long as eye. Malar space about 0.7-0.9 times as wide as basal width of mandible. Clypeus 1.8-2.2 times as wide as long, apical margin as in female. Antennae with 25-28 segments; first flagellar segment 3.8-4.5 times as long as its maximum width; tyloids on the 11th -14th flagellar segments, with small secretory pores. Flagellum with strongly protruding setae among short pubescence. Genal carina joining oral carina behind base of mandible at a distance of 0.4-0.7 times the basal width of the mandible. Hind ocelli separated from eye by about 1.3-1.7 times their diameter. Space between hind ocelli 1.2-1.6 times their diameter. Other features as in female.

Mesosoma: Mesopleuron mostly strigose to rugose and distinctly punctate on a polished background just above the sternaulus; the upper part polished with very sparse setiferous punctures, with some weak wrinkles between the speculum and its front part. Notauli long and convergent, almost reaching the scutellar groove. Speculum smooth, polished and completely hairless. Sternaulus nearly straight, only strongly distinct on 2/3 the length of mesopleuron. Metapleuron punctate in front half, tending to be conspicuously rugose posteriorly. First lateral area of propodeum sparsely punctate on a smooth to coriaceous background; apical carina not forming a sublateral crest. Radial cell 2.8-3.1 times as long as its maximum width. Subdiscoideus reaching postnervulus in or a little above its middle. Hind femora 5.1-5.8 times as long as high. Other features as in female.

Metasoma: First metasomal tergite finely coriaceous, the hind edge tending to be smooth and polished. Median dorsal carinae absent. Rest of metasomal tergites, strongly coriaceous with dense setiferous punctures. Second metasomal tergite variable, 1.7-2.7 times as long as its maximum width (seen from above). Postpetiole 1.5-2.0 times as long as wide. Thyridia distinct, round and slightly concave.

Body black. Face, inner orbits entirely, lower half of temples, malar space, clypeus, mandibles (except teeth), palpi, scape and pedicellus from below, collar, tegulae, subtegular ridge, apex of scutellum and postscutellum, propleuron, front coxae, front and middle trochanters, spots in middle and hind coxae white. Dorsal part of second hind trochanter, basis of femora and apical edge of metasomal tergites dark yellow to orange. Femora, tibiae and tarsi brown. In a few specimens face is not completely white and dark bands, separating face from inner orbits, are present. Wings without a transverse dark band.

Etymology. – The species name refers to the Castilla-La Mancha Autonomous Community (Spain), place where the most part of the material has been collected.

Type material. – Holotype: 1 ♀, Melojar Viñuelas (P.N. Cabañeros, Ciudad Real, Spain), 8-30-V-2004, leg. CIBIO (CEUA). Paratypes: same locality, 8-30-V-2004, 2 ♀♀ (1 ♀ in Kolarov Coll, 1 ♀ in CEUA); 30-V/10-VI-2004, 3 ♂♂ (1 in KC); 10-VI/18-VI-2004, 1 ♂; 18-VI/4-VII-2004, 2 ♂♂; 12-IX/5-X-2004, 3 ♂♂; Alcornocal Gargantilla (P.N. Cabañeros, Ciudad Real, Spain), 23-VIII/11-IX-2004, 2 ♂♂; Venta Carrasqueta (Sierra Carrasqueta, Alicante, Spain), 23-IV/15-V-2006, 1 ♂, all them leg. CIBIO (CEUA).

Habitat. –The Cabañeros National Park is a protected area of about 40,000 Ha, located south of the Toledo Mountains, in the Castilla-La Mancha Autonomous Community (Spain). It's characterized by alternating mountainous areas with vast extensions of pastureland called "raña".

In the Park, Viñuelas is a pyrenean-oak wood, situated in a valley around the Viñuelas stream, in the centre of the National Park. It's a forest of *Quercus pyrenaica* belonging to the *Arbuto unedonis-Quercetum pyrenaicae* association, located in the Mesomediterranean subhumid bioclimatic belt; sometimes other species like *Quercus*

faginea may occur. Bushes of *Arbutus unedo*, *Viburnum tinus*, *Phyllirea angustifolia* and *Erica arborea* are also present.. The other locality in the Park is Gargantilla, a cork-oak wood of *Quercus suber* belonging to the *Sanguisorbo hybridae-Querceto suberis sigmetum* association, characterized by the presence of vascular plants as *Sanguisorba agrimonioides* and *Paeonia broteroi*. The climate is temperate with Mediterranean influence, so there is a dry season, corresponding to summer, and a wetter one in winter. The annual mean temperatures are about 13-16°C, and rainfall is usually above 500 mm per year.

The Carrasqueta Mountain is located in the North-Western part of Alicante province (Spain), and belongs to the Baetic Mountains. This habitat is characterized by the presence of meridional holm-oak forests.

In this area the material was collected in Venta de la Carrasqueta, a culture area abandoned about 20 years ago, in which is present a remainder of a mediterranean holm-oak wood of *Quercus rotundifolia* belonging to the *Quercetum rotundifoliae* vegetal association, with the presence of *Rubia peregrina* and *Smilax aspera*, and an herbaceous level of *Brachypodium retusum*. The climate is mediterranean, with a strong dry season in summer. Rainfall is about 500 mm per year, and annual mean temperatures are between 9 and 15°C.

Biology. – This species seems to be bivoltine with peaks of flight activity in late spring-early summer and early autumn (Fig. 1). The specimen from Venta de la Carrasqueta was captured in spring. Hosts are unknown.

(FIG. 1)

***Enclisis balcanica* sp. n.**

(Figs 11, 22, 28, 48)

Diagnosis.- Female: Frons strongly concave specially in front half (Fig. 22). Hind ocelli separated from the eye about 1.7 times of their diameter. Space between hind ocelli 1.7 times as long as diameter of ocellus. First flagellar segment 3.4-3.5 times as long as wide. Clypeus 2.2 times as wide as long. Mesoscutum mostly polished, moderately dense and coarse punctate, with regular dense hairs. Mesopleuron strongly rugose on the upper side of sternaulus, with exception of the speculum (Fig. 11). First lateral area of propodeum

finely coriaceous, almost mat. Metapleuron coarsely rugose or strigose. Subdiscoideus vein reaching postnervulus distinctly below its middle (Fig. 48). First metasomal tergite uniformly down curved (seen laterally). Head black, only facial and narrow frontal orbits, marks on outer orbits, part of clypeus and mandible red to orange. Mesosoma and all coxae entirely black; Hind femur red. Hind tarsus without white ring. Metasoma red, sometimes basis of first tergite and from fifth to apex fuscous. .

Male: Hind ocelli separated from eye about 1.3-1.4 times their diameter. Space between them 1.3-1.4 times as long as their diameter. Mesopleuron more or less rugose and punctate on a shiny background; just in front of speculum only punctate (Fig. 28). Second metasomal tergite 2.2-2.3 times as long as wide. Head mostly black, only inner orbits, lower 1/3 of outer orbits, clypeus partially and mandibles (except teeth) yellow. Hind tarsus without white ring.

Description. – Female: Body length (without ovipositor) 6.5-6.7 mm long. Head 0.7-0.8 mm long and 1.4-1.5 mm wide. Mesosoma 2.4-2.5 mm long and 1.0-1.1 mm wide (mesoscutum). Front wing 5.0-5.1 mm long. Petiole 0.6-0.8 mm long. Postpetiole 0.4-0.5 mm long and 0.6-0.7 mm wide. Ovipositor sheaths 2.5-2.6 mm long.

Head: Transverse, 1.8-1.9 times as wide as long, strongly restricted behind the eyes. Temple 0.4 as long as diameter of eye (viewed from above). Vertex, frons and face granulate, with moderately dense punctures. Frons distinctly concave. Lower half of temples with fine and sparse punctures, shiny. Malar space strongly granulate, 1.1 as long as basal width of mandible. Clypeus moderately convex and polished, with only a few weak punctures, 2.2 as wide as long, its apical margin almost straight, with sharp lateral edges and a blunt angulation on the middle. Lower tooth of mandible slightly longer than upper tooth. Flagellum with 22-23 segments. First flagellar segment 3.4-3.5 as long as wide. Genal carina joining oral carina behind base of mandible at a distance 0.7-0.8 times the basal width of the mandible. Hind ocelli separated from the eye about 1.7 of their diameter. Space between hind ocelli 1.7 as long as diameter of ocellus.

Mesosoma: Pronotum strigose. Epomia distinct. Mesoscutum polished, moderately dense and coarsely punctate, with regular dense hairs. Notauli deep, reaching middle of mesoscutum. Prescutellar groove with longitudinal wrinkles. Scutellum smooth and polished, with weak punctures, not carinated laterally. Mesopleuron strongly rugose on the upper side of sternaulus, with exception of the speculum. Speculum small, smooth and hairless. Sternaulus moderately deep on front 2/3 of mesopleuron, its hind end weakly

present and downward towards base of middle coxa. Metapleuron coarsely rugose to strigose. Propodeum weaker rugose on a granulate background; first lateral area punctate on a finely granulate background, almost mat. Both transversal carinae usually complete and strong, apical carina forming a lateral crest, sometimes basal carina indistinct laterally. Justacoxal carina present at least at the base. Propodeal spiracle small, circular and joining pleural carina. Front wing with radial cell 2.9-3.0 as long as its maximum width. Second recurrent vein vertical, with one bulla. Areolet pentagonal, strongly convergent towards the front side. Nervulus opposite to basal vein. Subdiscoideus vein reaching postnervulus distinctly below its middle. Nervellus weakly reclivous, intercepted a little below the middle. Brachiella complete. Hind femur 4.4-4.5 as long as its maximum width.

Metasoma: First metasomal tergite uniformly downcurved near the spiracles (seen laterally). First tergite weakly granulate, tending to be smooth in lateral parts of postpetiole. Median dorsal carinae reaching spiracles and obsolescent on postpetiole. Postpetiole transversal. Second and third tergites granulate, without punctures. Second tergite 0.6 as long as wide apically; thyridia small and weakly concave, rounded. Ovipositor straight with nodus and distinct teeth on the lower valve; its tip 3.5-3.7 as long as maximum height at the nodus (Fig 51). Ovipositor sheaths 1.2-1.3 as long as hind tibia.

Body black. Flagellar segments 6th-9th, membranous part of 7th metasomal tergite and base of pterostigma white. Scapus, pedicellus and 1st-2nd flagellar segments from below, narrowed inner orbits and lower half of outer orbits, clypeus, mandible (except base and teeth), palpi, legs (except coxae, trochanters and base of front femur), apical half of first metasomal segment, 2nd-3rd tergites entirely and 4th tergite laterally red to orange.

Male: Body length 4.9-5.8 mm long. Head 0.5-0.6 mm long and 0.8-1.0 mm wide. Mesosoma 1.4-1.7 mm long and 0.6-0.8 mm wide (mesoscutum). Front wing 3.5-4.2 mm long. Petiole 0.4-0.5 mm long. Postpetiole 0.3-0.4 mm long and 0.2-0.3 mm wide. Second tergite 0.7-0.8 mm long.

Head: Transversal, 1.8 as wide as long. Temple 0.5-0.6 as long as diameter of eye. Frons convex, slightly granulate. Malar space about 0.8 as long as basal width of mandible. Clypeus 2.2-2.5 as wide as long, apical margin as in female. Antenna with 25-26 segments; first flagellar segment 2.9-3.1 as long as wide; tyloids on 11th-14th (15th) segments, with small secretory pores. Flagellum with strongly protruding setae among short pubescence. Genal carina joining oral carina behind base of mandible at a distance 0.5-0.6 of basal

width of mandible. Hind ocelli separated from eye by about 1.3-1.4 its diameter. Space between hind ocelli 1.3-1.4 as long as diameter of ocellus. Other features as in female.

Mesosoma: Lateral parts of pronotum smooth and shiny. Mesopleuron more or less rugose and punctate on a shiny background; just in front of speculum only punctate. Ramulus absent. Radial cell of front wing 2.9-3.0 as long as its maximum width. Hind femora 5.3-5.6 as long as wide. Mesoscutum weakly punctate and polished. Other characters as in female.

Metasoma: Metasomal tergites strongly coriaceous, first tergite apically smooth and polished with a few shallow punctures. Second tergite 2.2-2.3 as long as wide apically. Thyridia elongated.

Body black. Narrowed inner orbits, lower 1/3 of outer orbits, clypeus, mandible (except teeth), palpi, front and middle coxae apically, front and middle first and second trochanters below and tegulae yellow, sometimes apex of scutellum and hind rim of metasomal segments orange yellowish. Legs except coxae and trochanters orange reddish. Flagellum, hind tibiae and tarsi brown.

Etymology. – The species name refers to the Balkan Region, the area where the material has been collected.

Type Material. – Holotype: 1 ♀, Bulgaria - Madjarovo, 200 m, 13.IV.2000, 1 ♀ (KC). Paratypes: Greece – Piaria ori Ritini, 1000 m, 10.VI.1992, 1 ♀ (KC); Lesbos Island, Sikaminia, 10-17.IV.2001, 1 ♂; 17-24.IV.2001, 1 ♂; 3-10.V.2001, 1 ♂; (CEUA)

Habitat. - Madjarovo, Haskovo district is an area at 200 m over the sea level, near South Bulgarian border. The Malaise trap functioned in a place in the right beach of Arda river in a small open meadow surrounded by an oak forest of *Quercus cerris* L and other plants as *Carpinus betulae* (Ger), *Acer platanoides* L., *Corylus avellana* L., *Rosa canina* L. and *Trifolium pratense* L. The climate is submediterranean. In Sikaminia (Lesbos Island) the Malaise trap was functioning in a maquis dominated by evergreen shrubs such as *Quercus coccifera*, *Pistacia lentiscus* and *Olea europaea* var. *sylvestris*.

Biology. – The species fly in spring but the complete phenology is not known. Hosts are unknown.

Acknowledgements

We are especially grateful to Dr. Martin Schwarz, Biologiezentrum des OÖ. Landesmuseums (Linz, Austria), who revised material and made valuable taxonomic comments. Our special thanks to the curators of the collections at the Laboratory of Entomology of Wageningen University (The Netherlands), Musée Cantonal de Zoologie (Lausanne, Switzerland), Museum of Natural History of Wrocław University (Poland), Museum of Zoology of Lund University (Sweden), Natur-Museum Senckenberg (Frankfurt, Germany) and The Natural History Museum (London, United Kingdom) for the loan of *Enclisis* type material from the collections in their care. We also want to express our sincere gratitude to the staff of Cabañeros National Park and Font Roja Natural Park for give us facilities and permissions for collect material in these protected areas.

This research was supported partially by the Projects 040/2002 from Ministerio de Medio Ambiente of Spanish Government and GV06/271 and AINV06/103 from Conselleria d'Empresa, Universitat i Ciència of Generalitat Valenciana.

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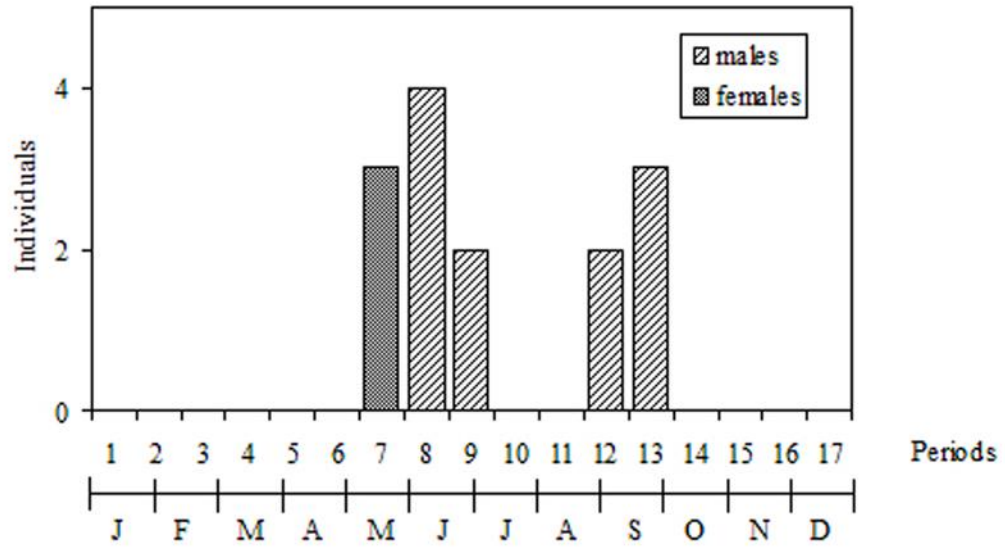
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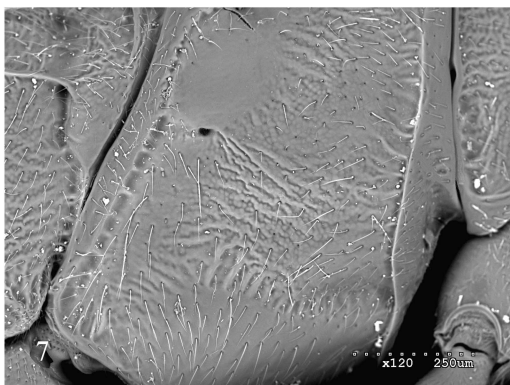
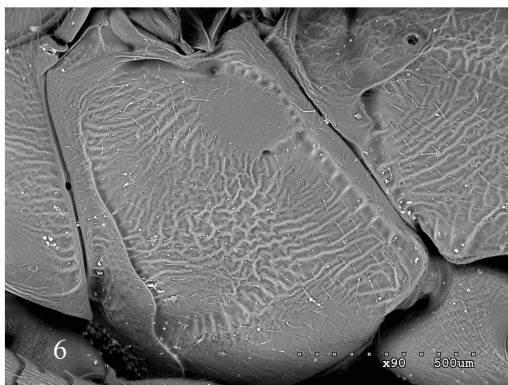
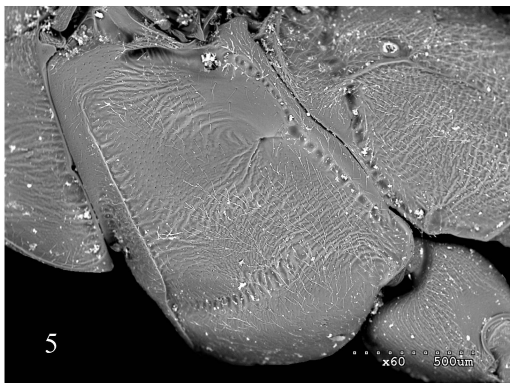
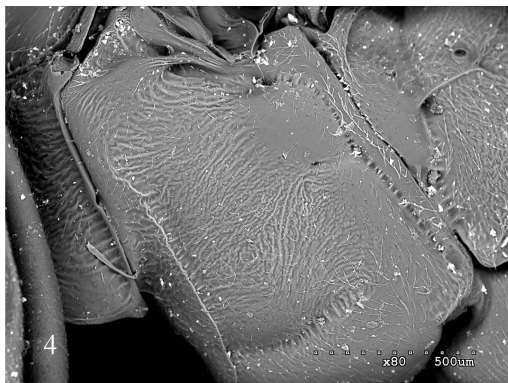
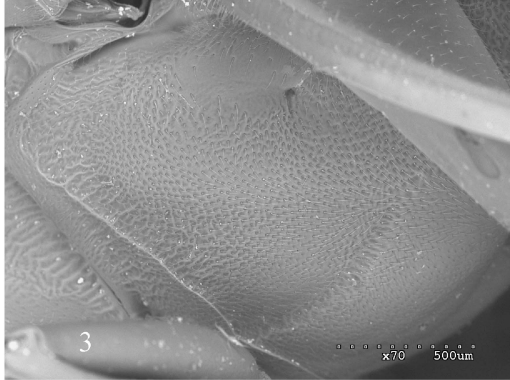
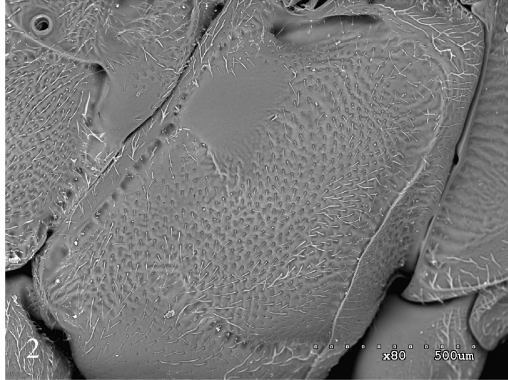
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- Fig. 1. Phenology of adults of *E. castellana* sp. n.
- Fig. 2-7. Females. Morphology of mesopleuron. 2- *E. vindex*, 3- *E. chinensis*, 4- *E. macilenta*, 5- *E. ruficeps*, 6- *E. infernator*, 7- *E. schwarzi*.
- Fig. 8-11. Females. Morphology of mesopleuron. 8- *E. dichroma*, 9- *E. castellana*, 10- *E. ornaticeps*, 11- *E. balcanica*.
- Fig. 12-14. Females. Morphology of first flagellar segment. 12- *E. vindex*, 13- *E. chinensis*, 14- *E. macilenta*,
- Fig. 15-16. Females. Morphology of first flagellar segment. 15- *E. infernator*, 16- *E. schwarzi*.
- Fig. 17-19. Females. Morphology of first metasomal tergite. 17- *E. dichroma*, 18- *E. castellana*, 19- *E. ornaticeps*.
- Fig. 20-21. Females. Morphology of first lateral area of propodeum. 20- *E. castellana*, 21- *E. ornaticeps*.
- Fig. 22-23. Females. Head in front view. 22- *E. balcanica*, 23- *E. ornaticeps*.
- Fig. 24-25. Females. Hind femora. 24- *E. infernator*, 25- *E. schwarzi*.
- Fig. 26-31. Males. Morphology of mesopleuron. 26- *E. alpicola*, 27- *E. macilenta*, 28- *E. balcanica*, 29- *E. infernator*, 30- *E. schwarzi*, 31- *E. vindex*.
- Fig. 32-35. Males. Morphology of mesopleuron. 32- *E. dichroma*, 33- *E. ornaticeps*, 34- *E. castellana*, 35- *E. ruficeps*.
- Fig. 36-37. Males. Morphology of metapleuron. 36- *E. infernator*, 37- *E. schwarzi*.
- Fig. 38-39. Males. Morphology of face. 38- *E. ornaticeps*, 39- *E. castellana*.
- Fig. 40-49. Females. First brachial cell of front wing. 40- *E. vindex*, 41- *E. macilenta*, 42- *E. chinensis*, 43- *E. ruficeps*, 44- *E. infernator*, 45- *E. schwarzi*, 46- *E. dichroma*, 47- *E. castellana*, 48- *E. balcanica*, 49- *E. ornaticeps*.
- Fig. 50-51. Females. Ovipositor tip. 50- *E. castellana*, 51- *E. balcanica*.

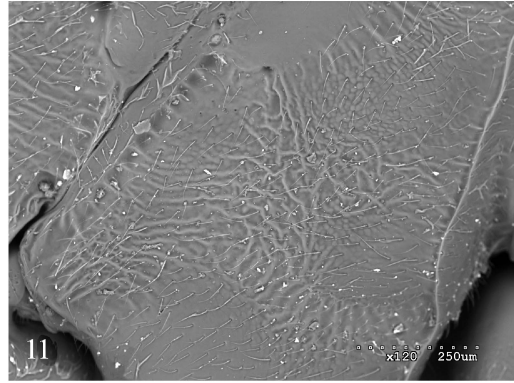
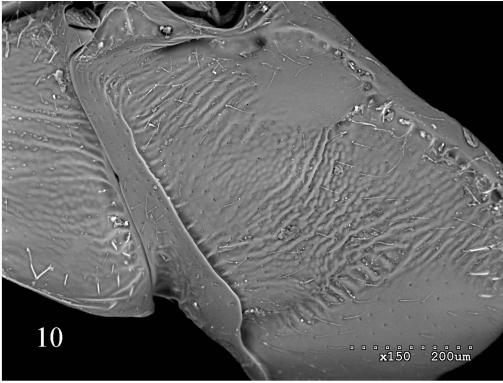
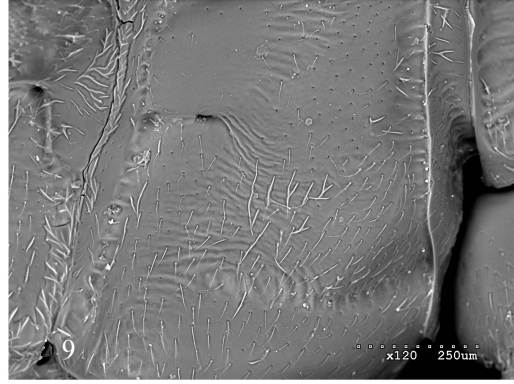
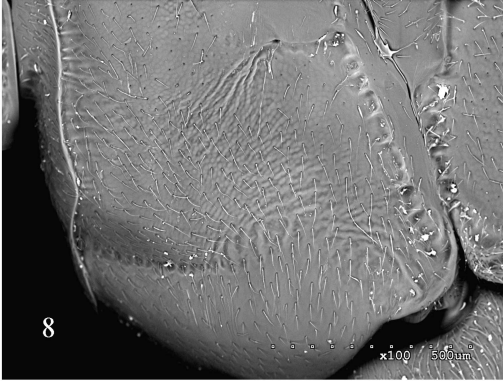
Figures

Figure 1

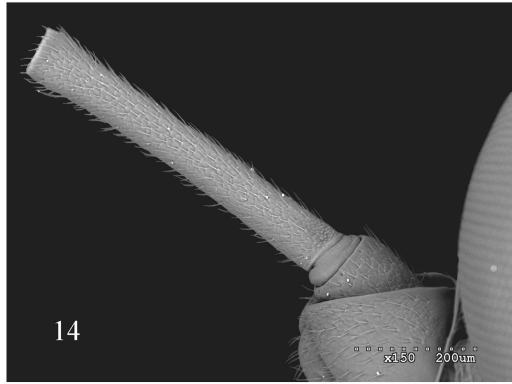
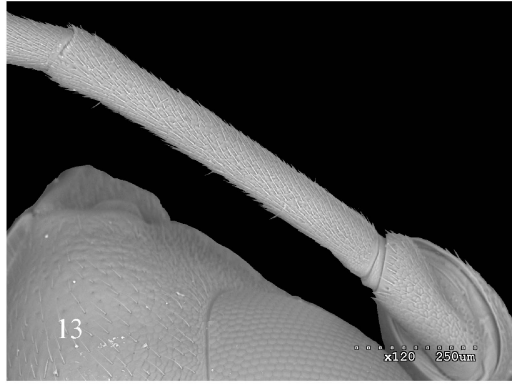
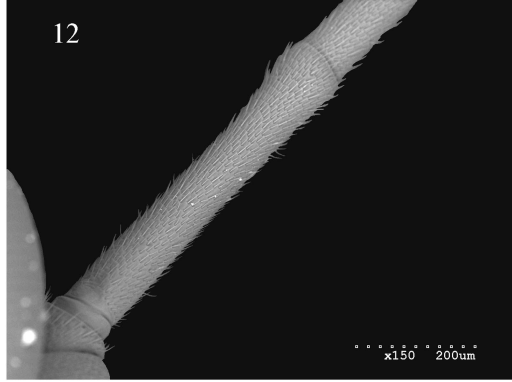




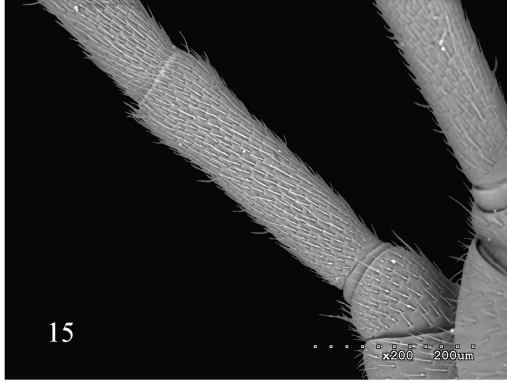
Figs 2-7



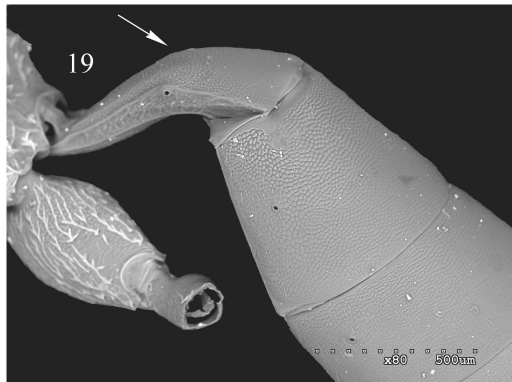
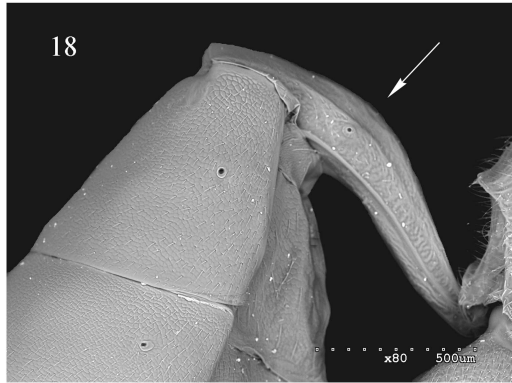
Figs 8-11



Figs 12-14

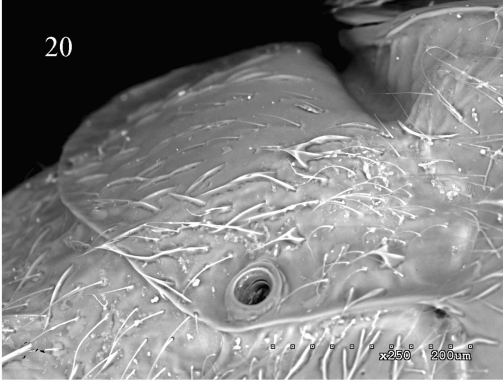


Figs 15-16



Figs 17-19

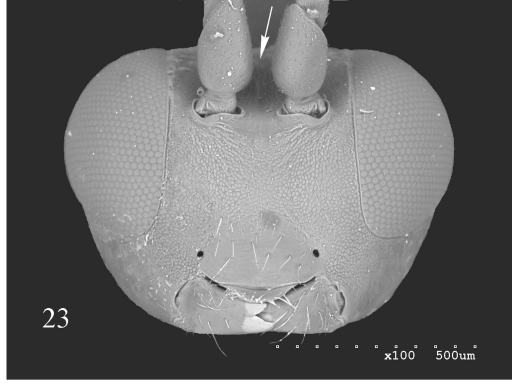
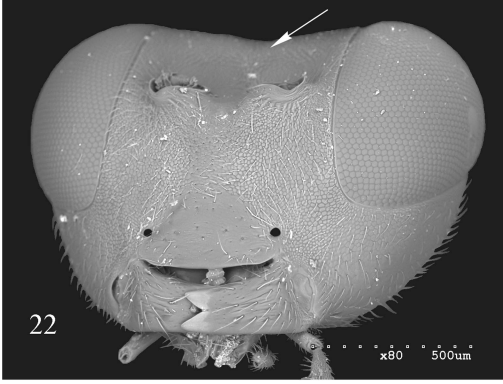
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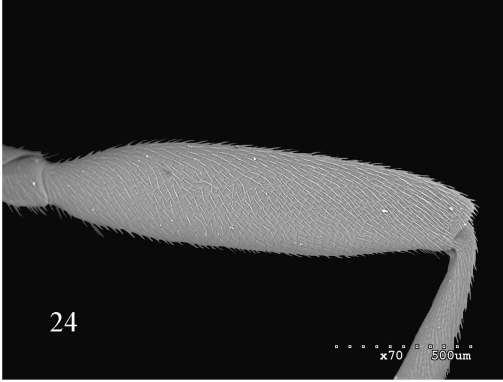
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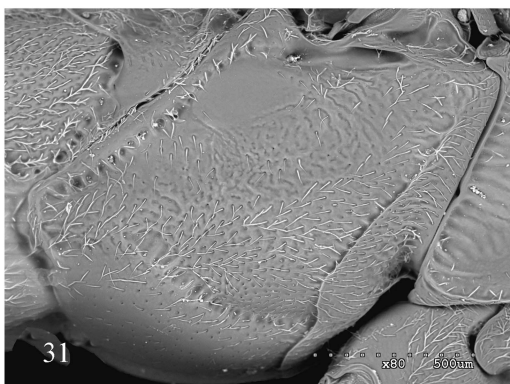
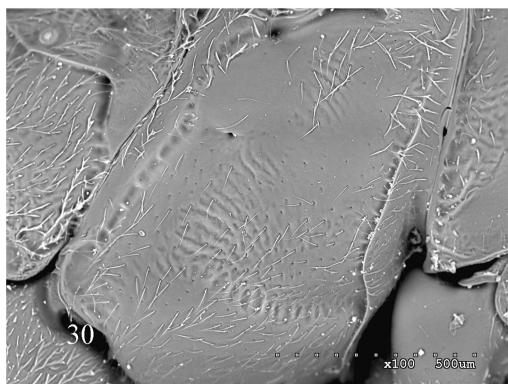
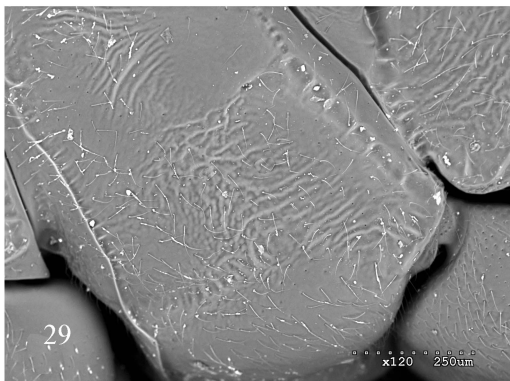
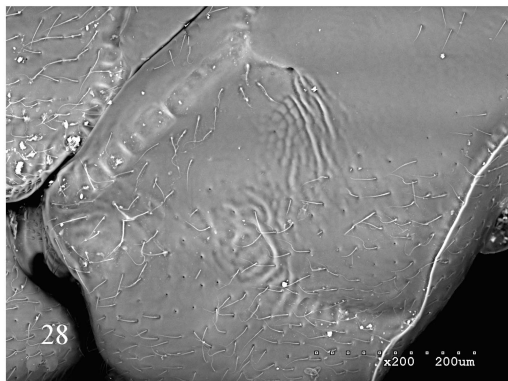
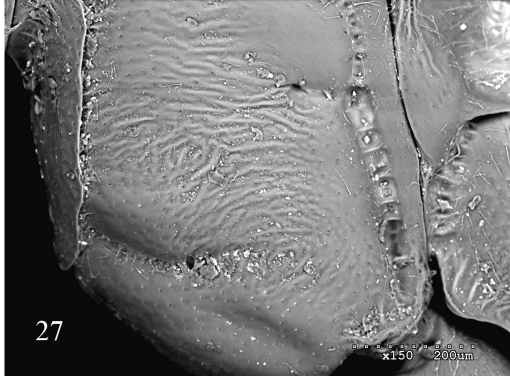
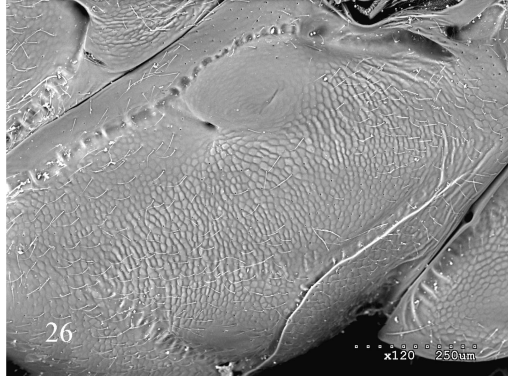
Figs 20-21



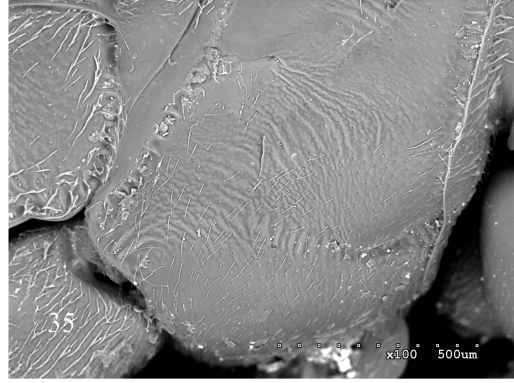
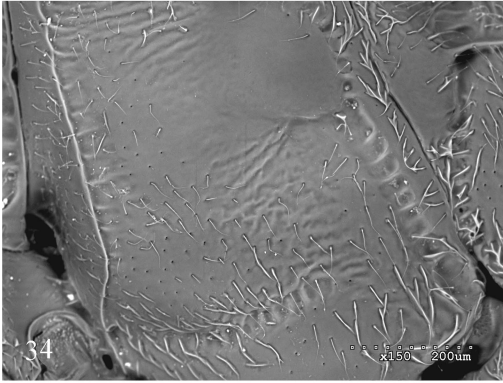
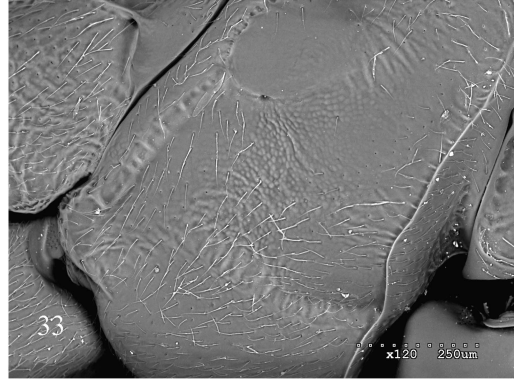
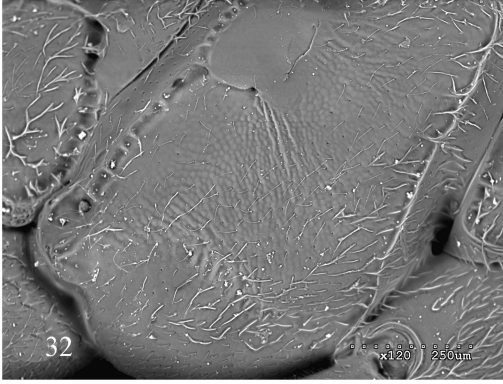
Figs 22-23



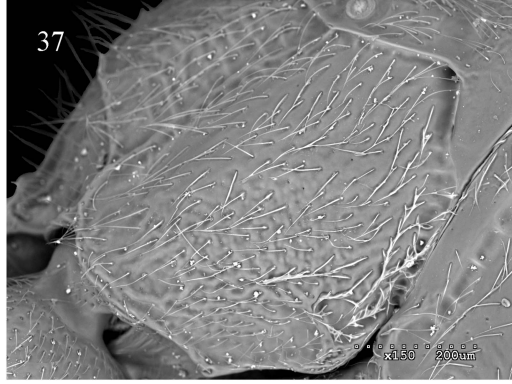
Figs 24-25



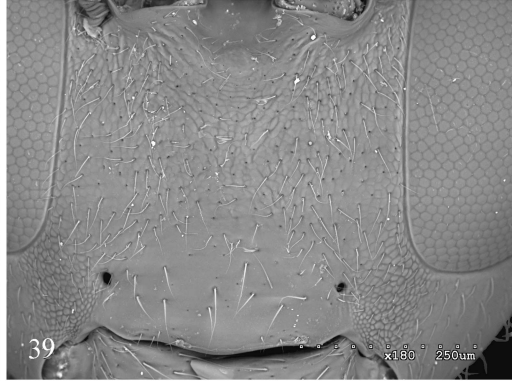
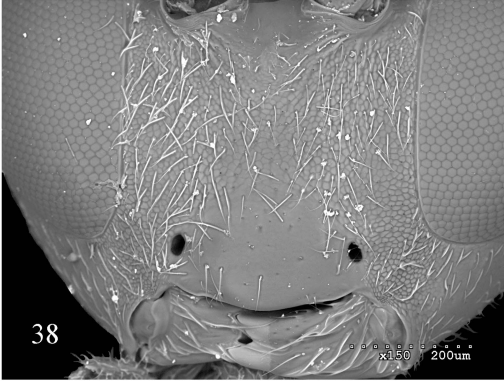
Figs 26-31



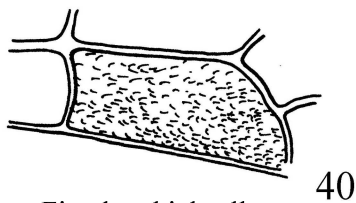
Figs 32-35



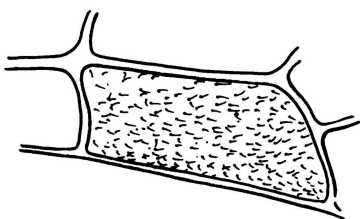
Figs 36-37



Figs 38-39

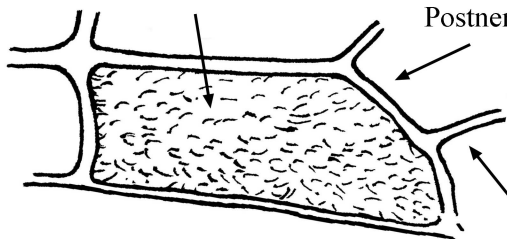


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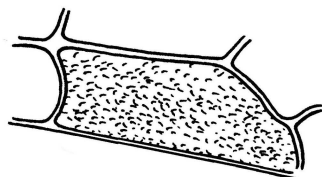
41

First brachial cell



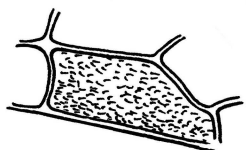
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Postnervulus

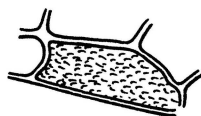


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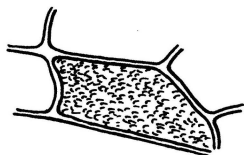
Subdiscoideus



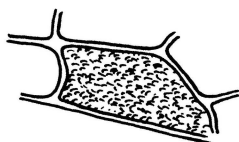
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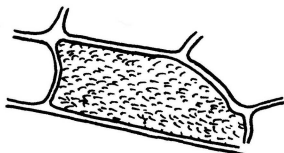
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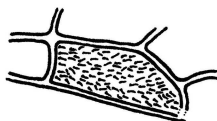
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47



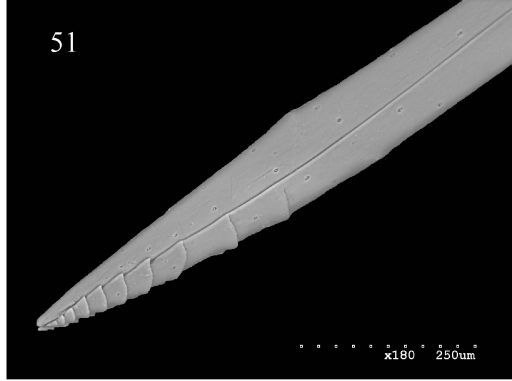
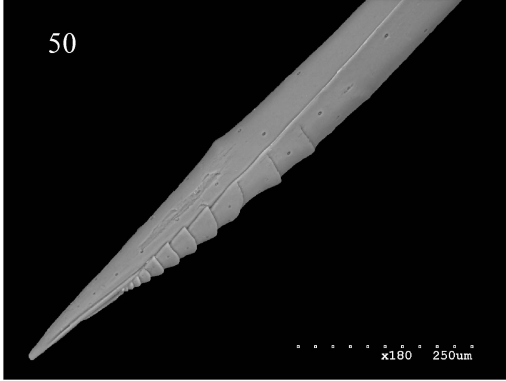
48



49

1 mm

Figs 40-49



Figs 50-51