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Coleophora alacanta Tabell, sp. n., a new coleophorid moth from southern Spain, with notes on the biology of *C. kahaourella* Toll, 1957 (Lepidoptera: Coleophoridae)

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Abstract

A new species, *C. alacanta* Tabell, sp. n. from Spain is described and its larval case is depicted. Notes on the biology of *C. kahaourella* Toll, 1957 are given, with illustration of its larval case.
KEY WORDS: Lepidoptera, Coleophoridae, *Coleophora alacanta*, *C. kahaourella*, new species, Spain.

***Coleophora alacanta* Tabell, sp. n., un nuevo coleofórido del sur de España, con notas sobre la biología de *C. kahaourella* Toll, 1957 (Lepidoptera: Coleophoridae)**

Resumen

Se describe una nueva especie de España *C. alacanta* Tabell, sp. n. y se presenta su saco larvario. Se dan notas sobre la biología de *C. kahaourella* Toll, 1957, con ilustración de su saco larvario.
PALABRAS CLAVE: Lepidoptera, Coleophoridae, *Coleophora alacanta*, *C. kahaourella*, nueva especie, España.

Abbreviations:

MZH = Zoological Museum, Helsinki, Finland
MNCN = Museo Nacional de Ciencias Naturales, Madrid, Spain

Introduction

During my first visit to Spain in April-May 2009, I collected by light (20 W fluorescent tubes) some adults of a white *Coleophora* species, which after dissecting turned out to belong to a previously unknown taxon. In March 2010, I revisited the localities to study the bionomy of the new taxon. I succeeded in finding larval cases of three different species of Coleophoridae on the leaves of *Anthyllis cytisoides* L. Rearing of the larvae was successful, and besides *C. vestalella* Staudinger, 1859, which is known to feed on *A. cytisoides* (e. g. NEL, 2001), some specimens of *C. kahaourella* Toll, 1957 and *C. alacanta* Tabell, sp. n. emerged too. The biology of *C. kahaourella* was previously unknown.

A. cytisoides is an easily recognizable small shrub, and it is widely distributed on road edges, pine forests and mountain slopes in the eastern provinces of Spain. In the study area, *C. vestalella* was rather abundant everywhere where this plant was growing. By contrast, *C. kahaourella* and *C. alacanta* occurred sporadically and larval cases were observed only in two different areas.

In this paper the nomenclature of anatomical terms follows LANDRY & WRIGHT (1993).

Coleophora alacanta Tabell, sp. n.

Holotype ♂ (GP 4312 JT) "Spain, Alicante, Albatera 10 km NNW, 450 m, 15-V-2009, J. Tabell leg.", coll. MZH.

Paratypes (10 ♂♂, 9 ♀♀): 2 ♀♀ same collecting data as in holotype. 1 ♂, (GP 4944 JT), 1 ♀, "Spain, Alicante, Albatera 11 km NNW, 500 m, 12-V-2009, J. Tabell leg.", coll. Tabell. 1 ♀, "Spain, Alicante, Albatera, 8.5 km NNW, 300 m, 22-V-2009, J. Tabell leg.", coll. Vives. 1 ♀, (GP 4945 JT) "Spain, Alicante, San Miguel de Salinas, 3 km SW, 8-V-2009, J. Tabell leg.". 2 ♂♂, 1 ♀, (GP 4671 JT) "Spain, Alicante, Torremendo, 3.5 km NW, 27-IV-2009, J. Tabell leg.". 1 ♀, (GP 4304 JT) same collecting locality, but 29-IV-2009, coll. Tabell. 2 ♂♂ same collecting locality, but 5-V-2009, coll. Vives and Tabell. 1 ♀ "Spain, Tarragona, Bonastre, 2 km S, 140 m, e.l., 28-IV-2010, *Anthyllis cytisoides,* 12-III-2010, J. Tabell leg.". 1 ♀ same collecting locality, but e.l., 3-V-2010, *Anthyllis cytisoides,* 19-III-2010. 1 ♂, same collecting data, but e.l., 5-V-2010, coll. Tabell. 2 ♂♂, "Spain, Almería, Almería, 20 km N, 22-IV-2009, T. & K. Nupponen leg.", coll. T. & K. Nupponen. 1 ♂, "Ins. Baleares, Mallorca, Palma Nova, e.l., 24-IV-1968, *Anthyllis cytisoides,* III-1968, J. Klimesch leg.". 1 ♂, same collecting data, but e.l., 27-IV-1968", coll. Baldizzone. Paratypes are deposited in colls. A. Vives (MNCN, Madrid, Spain), J. Tabell (Hartola, Finland), G. Baldizzone (Asti, Italy) and T. & K. Nupponen (Espoo, Finland).

Diagnosis: *Coleophora alacanta* Tabell, sp. n. (Fig. 1) is a moderately small white species, which is, rather exceptionally, identifiable by the external appearance from all related *Coleophora* taxa. A similarly coloured species, *C. vestalella* (Figs. 5-6) is markedly larger (wingspan 18 mm), but worn specimens of a greyish white species *C. rudella* Toll, 1944 (Fig. 2) may cause confusion. *C. vestalella* is known from Spain and France, *C. rudella* from Southern and Central Europe (BALDIZZONE *et al*., 2006). Both species occur also on the collecting sites of *C. alacanta*. The closely related species *C. jefreniensis* Toll, 1954 (Fig. 3), which is known from Libya, Malta (SAMMUT, 2008) and Tunisia is brownish and *C. congeriella* Staudinger, 1859 (Fig. 4), a species with wide Mediterranean distribution (BALDIZZONE *et al*., 2006) yellow with white stripes. In the male genitalia the extremely long appendix of vesica with numerous coils distinguishes *C. alacanta* from aforesaid species. Further diagnostic characters are long bristles of sacculus and costa, similar but more delicate than those of *C. jefreniensis*. In *C. congeriella* the single robust costal seta is absent. The male genitalia of *C. rudella* and *C. vestalella* are not similar to those of *C. alacanta* (e.g. NEL, 2001). The female genitalia are similar to those of *C. congeriella*, but the spinulate section of ductus bursae is slightly longer (9.3 times longer than sterigma, in *C. congeriella* 8.2 times longer). In *C. jefreniensis* the spinulate section is markedly shorter, and in *C. vestalella* and *C. rudella* the sterigma is differently shaped (e.g. NEL, 2001).

Description: Wingspan 10,7-12,5 mm. Head, thorax and labial palpus snow-white. Antenna sharply annulated with white and blackish brown, scape covered with white scales, ventrally tufted. Forewing whitish, with a weak hue of light ochreous stripes, cilia white with ochreous hue. Hindwing greyish buff, cilia white. Abdomen (Fig. 15) lustrous, pale grey, tergal patches (3rd segment) as long as wide, covered with 30-35 small conical spines.

Male genitalia (Figs. 10-12): Gnathos knob small, oval. Tegumen long, pedunculi short and broad. Transtilla parallel-sided, tips upcurved. Cucullus very narrow, parallel-sided, costa bulged, with one stiff and several delicate setae. Valvula weakly delineated. Ventral margin of sacculus convex, lateral margin oblique, slightly concave, ending in blunt, triangular protuberance, margins edged with a few robust, long bristles and several more delicate setae. Phallotheca weakly sclerotized, conical tube. In vesica a few moderately long cornuti grouped in slender, curved chain; appendix of outer sheath with over 15 tight coils.

Female genitalia (Figs. 13-14): Papillae anales oval with scattered longish bristles. Anterior apophyses slightly longer than sterigma, posterior apophyses twice longer. Sterigma trapezoid, proximal margin slightly concave, caudal margin rounded, edged with delicate setae, medial excavation rather broad and deep, caudally lined with short, stout setae. Ostium bursae rather wide, situated at

middle of sterigma. Antrum chaliced. Spinulate section of ductus bursae long, coiled once; median lamina extended beyond spinulate section, coiled; anterior section of ductus bursae long, transparent. Corpus bursae oval with one leaf-like signum.

Bionomy: The larva feeds on leaves of *Anthyllis cytisoides* in the spring (in March in the province of Tarragona and the Baleares). The larval case (Fig. 7) is made of four pieces of the host plant, cut off from the vacated mines. The final case is 6 mm long, light reddish brown, bivalved, the oral opening at 30º. The larva pupates in the case fixed on the branch of a twig. The similarly constructed larval case of *C. vestalella* (Fig. 9) is darker and markedly larger (8 mm).

Distribution: So far the new taxon is known from four Spanish provinces, Alicante, Almería, Tarragona and the Baleares Islands.

Derivation of name: The specific name refers to the Valencian name Alacanta of the province Alicante, where the new taxon was first detected.

Note: BALDIZZONE *et al*. (1981) depicted the larval case of *C. rudella*, based on Majorcan specimens reared on *A. cytisoides* by J. Klimesch. Nevertheless, this note is based on their misidentification of bred specimens, which actually belong to *C. alacanta*. Thus the figure represents the larval case of this new taxon too. The larval case of *C. rudella* is made of a floret of *A. cytisoides* (NEL, 1994).

Coleophora kahaourella Toll, 1957

Material examined: 4 ♀♀ "Spain, Alicante, Albatera, 11 km NNW, 500 m, 12-V-2009, J. Tabell leg."3 ♀♀ same collecting locality, e.l., 3-14-V-2010, *Anthyllis cytisoides,* 16-III-2010. 1 ♂, 2 ♀♀ "Spain, Alicante, Albatera, 10 km NNW, 450 m, 15-V-2009, J. Tabell leg.". 1 ♂, 1 ♀ "Spain, Alicante, Albatera, 8.5 km NNW, 300 m, 22-V-2009, J. Tabell leg.".

Bionomy: The larval case (Fig. 8) is creamy or yellowish white, constructed of one hollow piece of the leaf of *A. cytisoides*, excized from a leaf-mine. The anal opening is bivalved, the oral opening at 50º. The larva exchanges the case at least once, and length of the final case is 7 mm. Pupates inside the case in April.

Distribution: *C. kahaourella* is a rare species, which is only known from Libya and Spain (BALDIZZONE *et al*., 2006).

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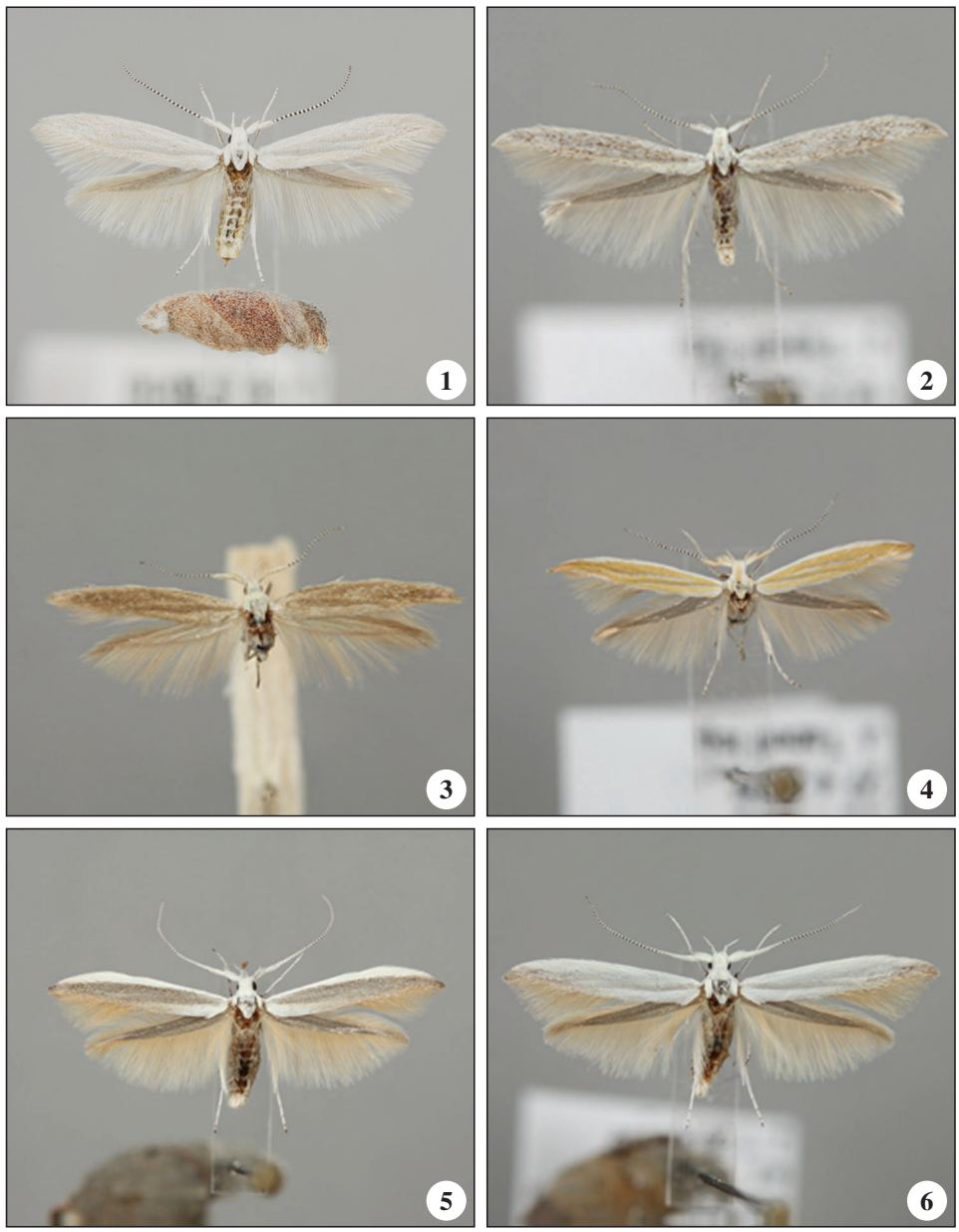
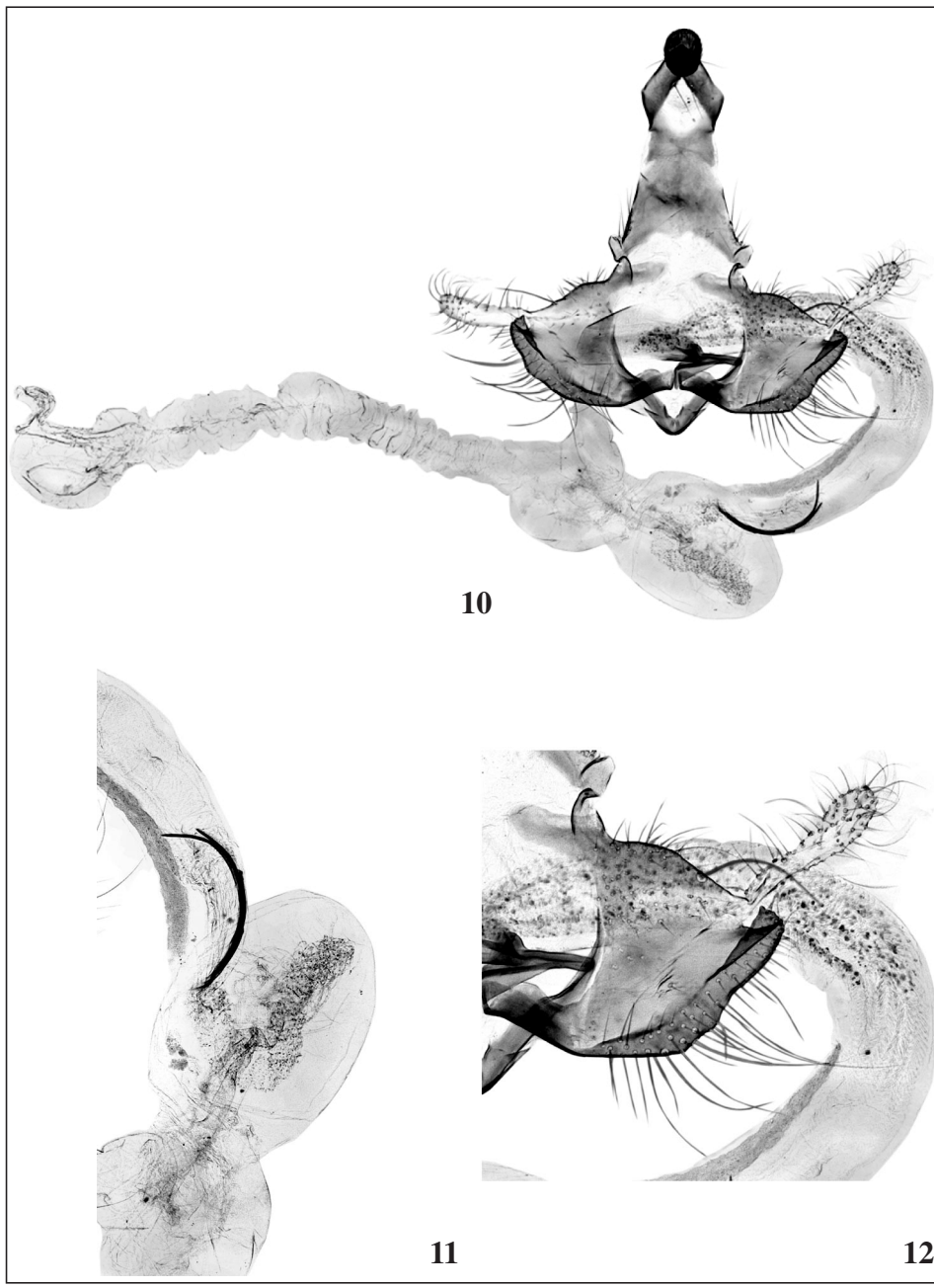
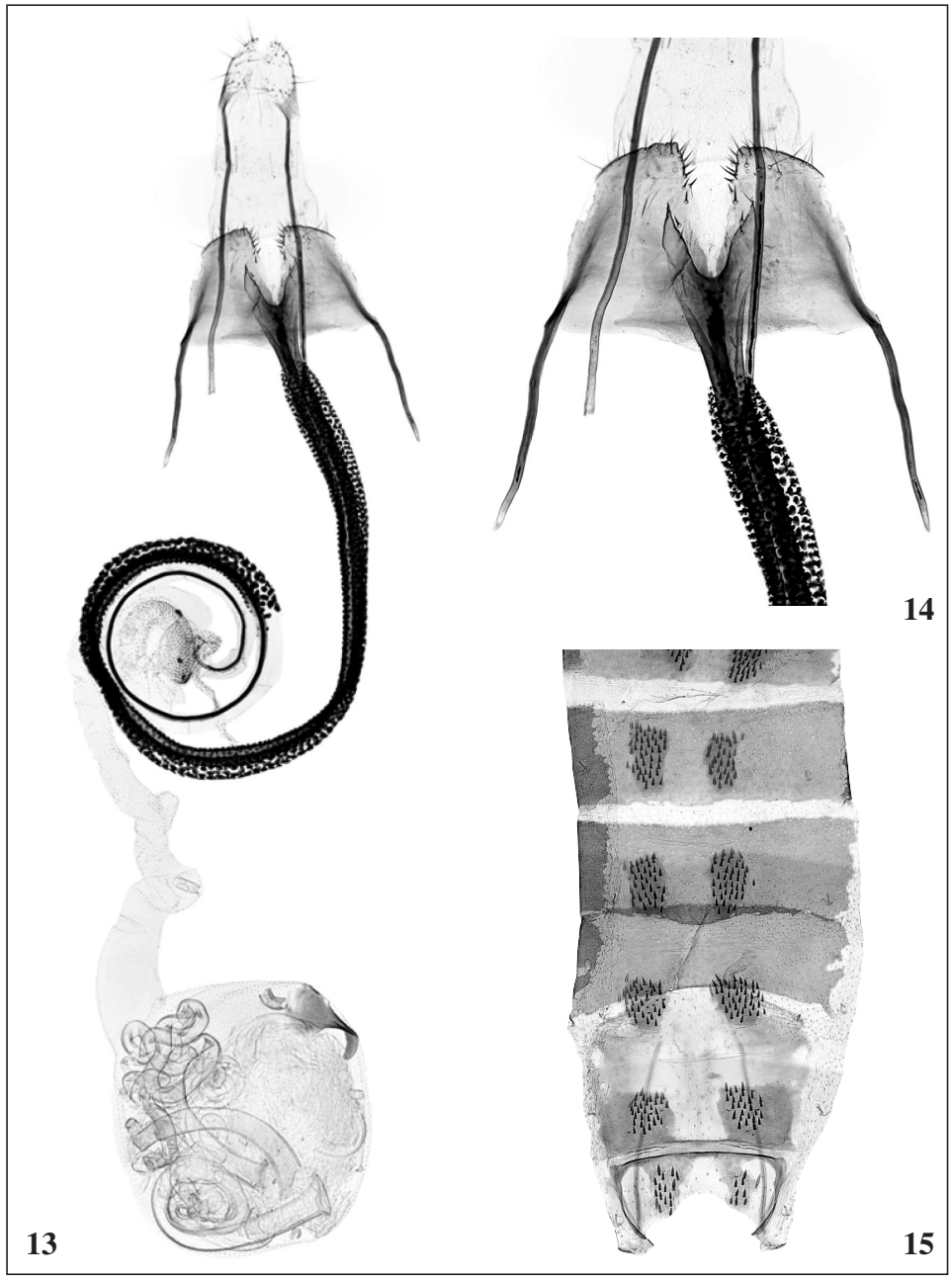


Figs. 1-6.– Imagos. **1.** *C. alacanta* Tabell, sp. n. (paratype, Spain, Bonastre 2 km S, e.l., 3-V-2010). **2.** *C. rudella* Toll, 1944 (Spain, Albatera 10 km NNW, 15-V-2009). **3.** *C. jefreniensis* Toll, 1954 (Tunisia, Douz, 9-IV-1983). **4.** *C. congeriella* Staudinger, 1859 (Spain, Torremendo, 27-IV-2009). **5-6.** *C. vestalella* Staudinger, 1859 (Spain, San Miguel de Salinas, e.l., 28-VI-2009; Albatera 9.5 km NNW, e.l., 20-VI-2009), showing individual variation on coloration of forewings (Photos: Reijo Siloaho).

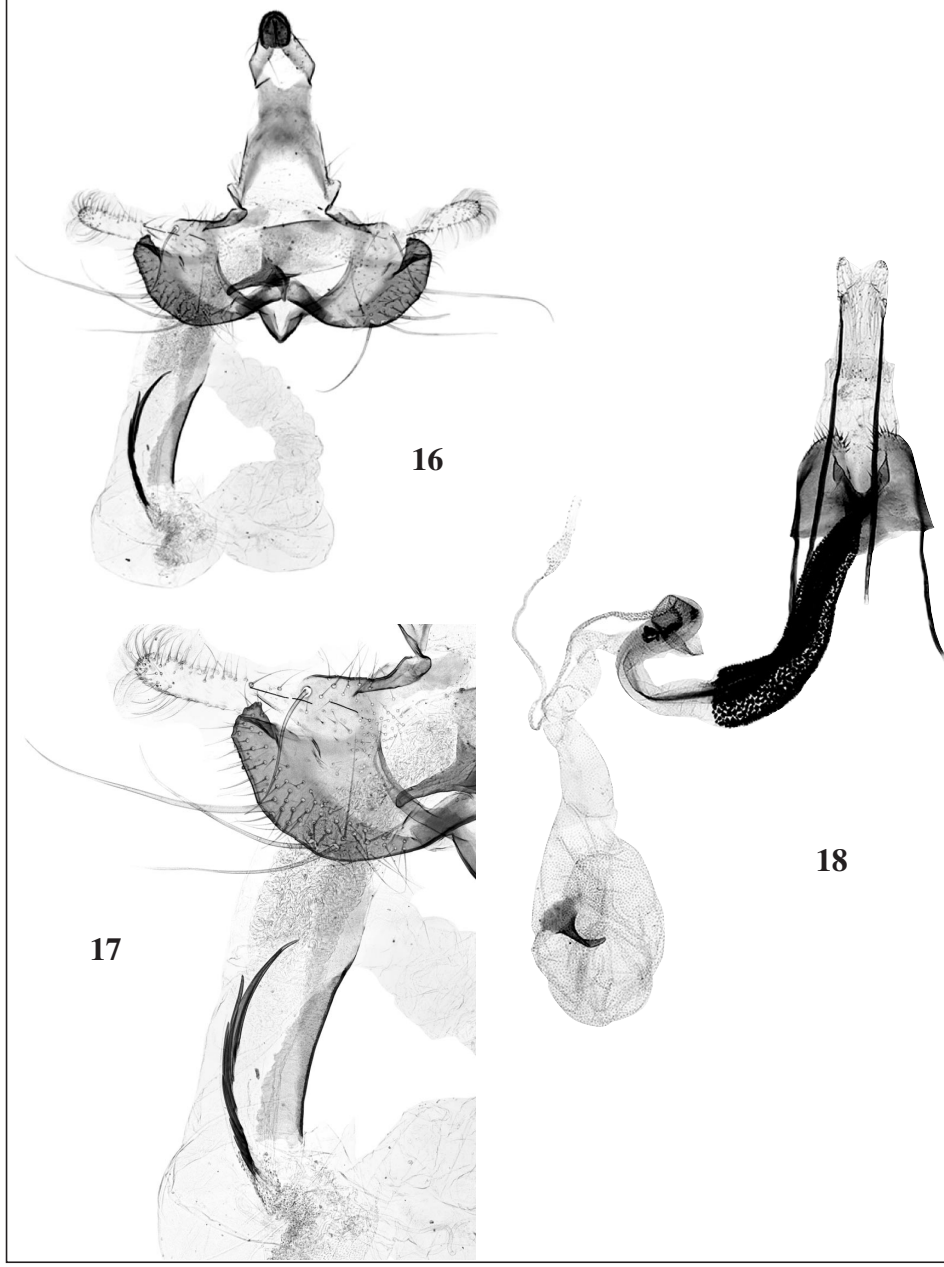
Figs. 7-9.– Larval cases. **7.** *C. alacanta* Tabell, sp. n. **8.** *C kahaourella* Toll, 1957. **9.** *C. vestalella* Staudinger, 1859 (Photos: Reijo Siloaho).



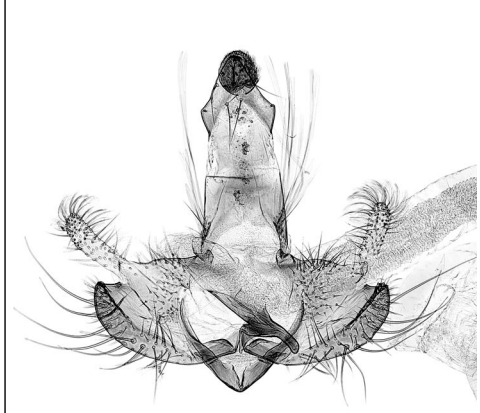
Figs. 10-12.– *C. alacanta* Tabell, sp. n. **10.** Male genitalia (paratype, Spain, Albatera 11 km NNW, GP 4944 JT). **11.** Cornuti enlarged. **12.** Cucullus and sacculus enlarged (Photos: Reijo Siloaho).



Figs. 13.–15.– *C. alacanta* Tabell, sp. n. **13.** Female genitalia (Spain, San Miguel de Salinas, 3 km SW, GP 4945 JT). **14.** Sterigma enlarged. **15.** Abdomen (Photos: Reijo Siloaho).



Figs. 16-18.– *C. jefreniensis* Toll, 1954. **16.** Male genitalia (Tunisia, Douz, GP 4948 JT). **17.** Cornuti and sacculus enlarged. **18.** Female genitalia (Tunisia, Douz, GP 4520 JT) (Photos: Reijo Siloaho).



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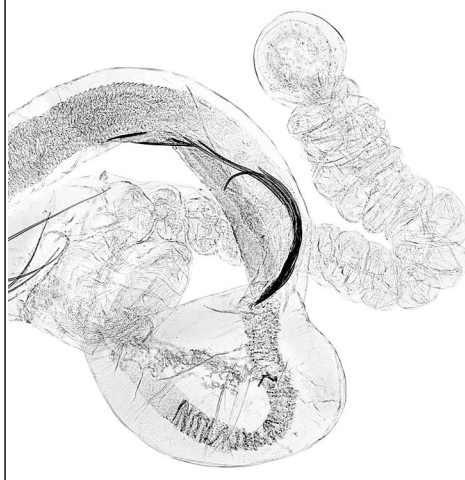

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Figs. 19-21.– *C. congeriella* Staudinger, 1859. **19-20.** Male genitalia (Spain, San Miguel de Salinas, GP 4670 JT). **21.** Female genitalia (Spain, Torremendo, GP 4683 JT) (Photos: Reijo Siloaho).