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ACROBASIS FOROIULIENSIS SP. N., A NEW SPECIES FROM NORTHERN ITALY (LEPIDOPTERA, PYRALIDAE)

ACROBASIS FOROIULIENSIS SP. N., UNA NUOVA SPECIE DELL'ITALIA SETTENTRIONALE (LEPIDOPTERA, PYRALIDAE)

Abstract - *Acrobasis foroiuliensis* sp. n. from Friuli Venezia Giulia and Veneto (Italy) is described. The new species is closely related to *Acrobasis consociella* (HÜBNER, 1813) and *A. xanthogramma* (STAUDINGER, 1870). Diagnostic characters are found in the pattern elements of the forewings as well as characters of the antennae, male and as far as known female genitalia to distinguish these taxa.

Key words: Lepidoptera, Pyralidae, Phycitinae, *Acrobasis foroiuliensis* sp. n., New species, Taxonomy, Italy.

Riassunto breve - *Acrobasis foroiuliensis* sp. n. viene descritta per la prima volta per il Friuli Venezia Giulia e il Veneto (Italia). La nuova specie è strettamente collegata ad *Acrobasis consociella* (HÜBNER, 1813) e *A. xanthogramma* (STAUDINGER, 1870). I caratteri diagnostici si ritrovano nel disegno delle ali anteriori e nelle caratteristiche delle antenne; i genitali maschili e, per quanto si sa, quelli femminili distinguono questi taxa.

Parole chiave: Lepidoptera, Pyralidae, Phycitinae, *Acrobasis foroiuliensis* sp. n., Nuova specie, Tassonomia, Italia.

Introduction

Phycitinae are in many parts of Europe one of the notoriously difficult groups of Lepidoptera, despite of some moderately recent monographic work by ROESLER (1973; 1993) which however, does not cover all genera. The absence of a modern revisional book or at least an identification guide including all described species of this subfamily is a major hindrance for faunistic work, particularly in southern Europe. However, the record of an unknown species of *Acrobasis* ZELLER, 1839 from north-eastern Italy came as a surprise since the European fauna of this genus is quite well known and the species are normally easy to identify externally. Several requests in the European lepidopterological community gave no results and after checking all taxa known from Europe and adjacent regions in major collections and relevant literature we came to the conclusion that this species is yet undescribed.

Acrobasis was described by ZELLER (1839) based on the type-species *Acrobasis consociella* (HÜBNER, 1813). The genus is characterised by several characters (HANNEMANN, 1964): antenna weakly ciliated in both sexes; labial palpus slender, upcurved, third segment pointed; maxillary palpus filiform; ocelli present; proboscis well developed; veins m_2 and m_3 originating from one point or stalked; frenulum a strong spine in both sexes; male genitalia with sub-triangular uncus, U to V-shaped juxta; abdominal sternite VIII of male with specialized sclerotizations (= culcita); female genitalia with membranous, partly scobinate ductus bursae and ductus seminalis; weakly sclerotized corpus bursae; signum weakly developed, various shape. From the Palearctic region 17 species are mentioned by ROESLER (1988) and only a single additional taxon has been described from Morocco recently (ASSELBERGS, 1998). LERAUT (2005) synonymised the genera *Conobathra* MEYRICK, 1886 and *Trachycera* RAGONOT, 1893 with *Acrobasis*, by which the number of species in this genus increased to 131, with 68 species in the Palearctic Region (20 species of which are known from Europe) (NUSS, 2005), 44 additional species in the Nearctic Region (NEUNZIG, 1986), and 19 species from outside of the Holarctic Region (NUSS, 2005).

Abbreviations

MFSN	Museo Friulano di Storia Naturale, Udine, Italy.
TLMF	Tiroler Landesmuseum Ferdinandeum, Innsbruck, Austria.
ZMHB	Museum für Naturkunde der Humboldt Universität zu Berlin, Germany.

Taxonomic part

Acrobasis foroiuliensis sp. n.

Material. Holotype ♂. 'Italia, Veneto, Caorle, Brussa, Valle Vecchia W, 27.VIII.2004, leg. Huemer' (TLMF).

Paratypes. Italy: 2 ♀♀, same data as holotype, but leg. Morin (MFSN; coll. Morin); 1 ♂, prov. Udine, Gonars-Porpetto, Biotopo Paludi del Corno, 16 m, 15.VIII.2001, leg. Huemer, gen. slide 04/1226 ♂ Huemer (MFSN); 1 ♀, prov. Udine, Talmassons, Biotopo Risorgive di Flambro, 22 m, 8.VI.2001, leg. Morin, gen. slide 04/1225 ♀ Huemer (MFSN); 1 ♂, 1 ♀, prov. Udine, Rivignano, Biotopo Risorgive di Zarnicco, 15 m, 13.VIII.2001, leg. Huemer & Erlebach (TLMF); 1 ♀, ditto, but 24.VI.2005, leg. Morin (coll. Morin); 2 ♂♂, 1 ♀, prov. Gorizia, Staranzano, Riva Lunga, 24.VIII.1999, leg. Morin, gen. slides 1042 ♀ Nuss, 1043 ♂ Nuss, PYR 329 ♂ Huemer (MFSN; coll. Morin; TLMF); 1 ♂, ditto, but 13.VIII.1998, leg. Morin (coll. Morin).

Diagnosis

Adult (fig. 1): Head thorax and tegulae dark brown, abdomen mid-brown, caudal margins of segments light brown, sternum I with patches of light brown scales; antenna dark brown, with

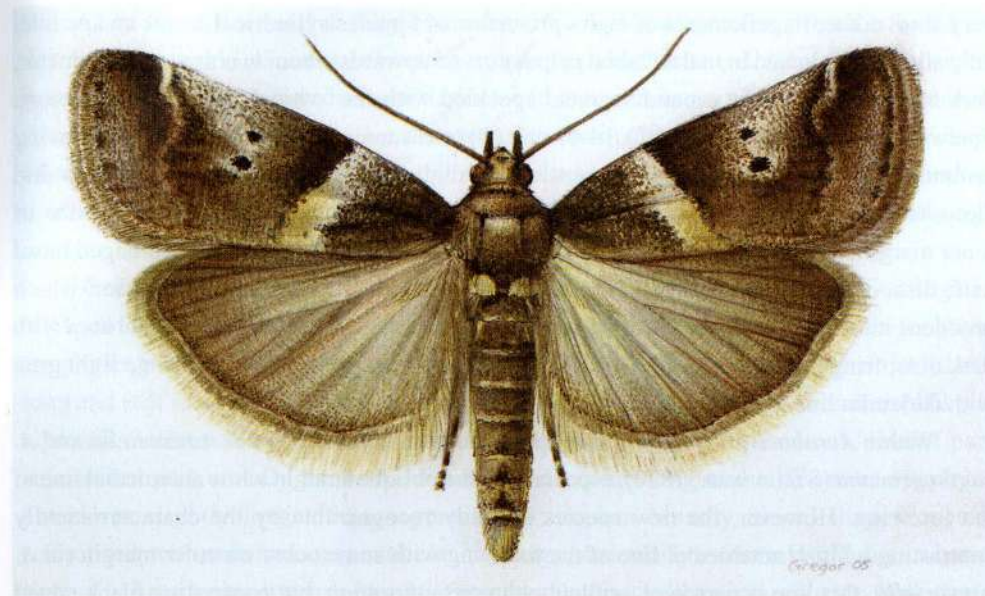


Fig. 1 - *Acrobasis foroiuliensis* sp. n., adult (wingspan 16 mm) (aquarelle of F. Gregor, Brno).
- *Acrobasis foroiuliensis* sp. n., adulto (apertura alare 16 mm) (acquarello di F. Gregor, Brno).

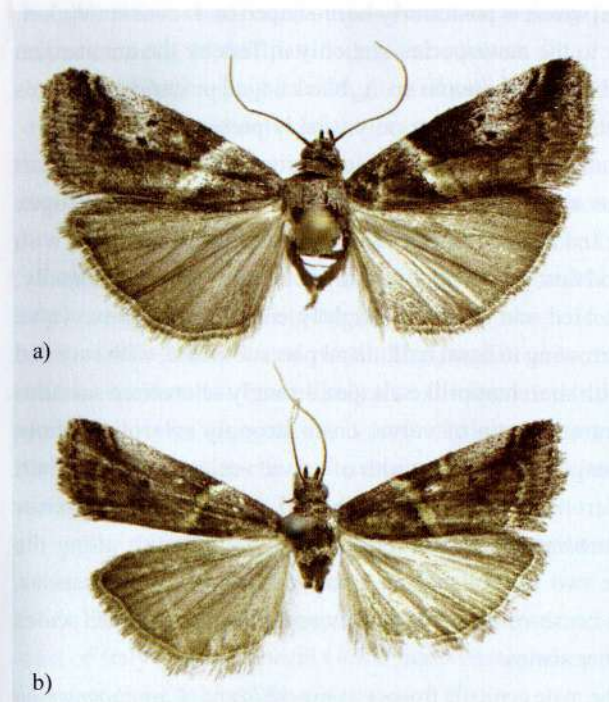


Fig. 2 - Adults of *Acrobasis*; a) *Acrobasis foroiuliensis* sp. n. (paratype) (wingspan 18.5 mm); b) *Acrobasis xanthogramma* (STAUDINGER, 1870) (holotype) (wingspan 17 mm).
- Esemplare adulto di *Acrobasis*; a) *Acrobasis foroiuliensis* sp. n. (paratipo) (apertura alare 18,5 mm); b) *Acrobasis xanthogramma* (STAUDINGER, 1870) (olotipo) (apertura alare 17 mm).

very short ciliae, flagellomeres of males prismatic, of females cylindrical, scape and pedicel only slightly thickened in males; labial palpus curved upwards, about two times eye diameter, dark brown, particularly second segment speckled with few whitish-tipped scales below. Forewing: wingspan 16-19 mm (♂), 14-15 mm (♀) (measured to the nearest 0.5 mm); forewing ground colour dark brown, slightly mottled with lighter scales towards inner margin and along termen; oblique antemedial fascia from about one quarter of costa to two-fifths of inner margin; antemedial fascia distinct, whitish with outwardly narrow ochre-edged basal half; discocellular area with two blackish spots, surrounded by whitish irroration which broadens into costal area; subterminal line whitish, fine, weakly serrated; terminal area with dark dots; fringe dark grey with dark cilia line. Hindwing: greyish-brown, fringe light grey with dark cilia line near base.

Within *Acrobasis*, *A. foroiuliensis* sp. n. is externally similar to *A. consociella* and *A. xanthogramma* (STAUDINGER, 1870), especially in the oblique straight white antemedial line of the forewing. However, the new species is easily recognizable by the characteristically contrasting whitish antemedial line of the forewing with some ochre on outer margin (in *A. consociella*, this line is narrower, without ochreous coloration, but contrasting black edged towards median space of wing), a conspicuous whitish subapical irroration (which is absent in *A. consociella*), the complete absence of reddish scales (which are present in *A. consociella*), and the only slightly thickened scape (which is posteriorly horn-shaped in *A. consociella*). *A. xanthogramma* is even more similar to the new species and only differs by the antemedian line (fig. 2), which is of half width as in *A. foroiuliensis* sp. n., black edged posteriorly towards the basal wing area and the two discocellular spots are only weakly present.

Genitalia ♂ (fig. 3). Uncus broadly sub-triangular, apically rounded, dorsolateral part densely covered with setae; gnathos about three-quarters length of uncus, slender, apex pointed, slightly hook-shaped; long and slender transtilla arms caudo-medially fused, with conspicuously bifurcated and rounded tips; juxta with digitate lateral arms, pointed dorsally; vinculum broad, with broadly truncated and medially slightly emarginated apex; valva moderately broad at base, slightly narrowing in basal half, distal part sub-ovate, with rounded ventral margin, valva in basal third with short hump-like clasper; strongly sclerotized sacculus extended to about two-fifths of ventral margin of valva; costa strongly sclerotized from base almost to apex; phallus about length and nearly width of valva, vesica without cornuti but with wrinkled and slightly sclerotized vesica. Sternite VIII reduced to an anterior transverse sclerotised ridge and a median U-shaped sclerotisation (= culcita); along the membranous stripe between these two sclerotisations a row of hair-like scales arises, laterally bordered by an additional brush of hair-like scales and a brush of ovate scales which are just 1/3 as long as the other scales.

A. foroiuliensis sp. n. differs in the male genitalia from *A. consociella* and *A. xanthogramma*

(fig. 4) by the slender and distally pointed and hook-shaped gnathos, which is broad and distally bifurcated in *A. consociella* and *A. xanthogramma*. Further, *A. foroiuliensis* sp. n. has much longer and more pointed arms of the juxta and a shorter clasper of the valva compared with *A. consociella*. In *A. xanthogramma*, the clasper is even smaller but the juxta is of similar shape. The transtilla is caudo-medially only slightly notched in *A. consociella*; in *A. foroiuliensis* sp. n. and *A. xanthogramma*, the two distal lobes have the same extent from their left to right margins, but they are much deeper notched in *A. foroiuliensis* sp. n.

Genitalia ♀ (fig. 5). Papillae anales subtriangular, about two-thirds length of segment VIII, covered with elongate setae; apophyses posteriores about 1.4 times length of apophyses anteriores; dorsum VIII distinctly shorter than ventrum VIII posteriorly, with long and stiff setae at posterior margin, anterior margin reaching beyond sternum VIII with sinusoid, sclerotized edge; segment VIII ventro-medially membranous, lateral parts sclerotized and broadly band-like covered with some long and stiff setae; apophyses anteriores slightly longer than segment VIII; antrum broadly funnel-shaped, weakly sclerotised, with numerous tiny cuticular swellings particularly on dorsal wall; ductus bursae gradually broadening towards abruptly separated and sack-like corpus bursae, both ductus and corpus bursae covered with microtrichiae, particularly close to entrance of ductus into corpus bursae and in the surrounding of the signum; posterior part of corpus weakly bulged at left-hand side, ductus seminalis arising from the posterior edge of this part; signum round, medial part deeply cup-shaped.

The female genitalia of *A. foroiuliensis* sp. n. differ from *A. consociella* by the absence of microtrichiae in parts of the corpus bursae, the absence of small spines in the ductus bursae, and the entrance of the ductus bursae in the posterior and lateral part of the corpus bursae. The female of *A. xanthogramma* is still unknown.

Habitat/Biology. *A. foroiuliensis* sp. n. is only known from a few protected localities in north-eastern Italy. All known sites are situated close to the Adriatic coast within wetland biotopes at altitudes from 2 m to about 15 m. The sites are characterized by a mixture of wetland meadows and hygrophilous to mesophilous woodland. According to related species it is most likely that the larva feeds on deciduous trees or shrubs, maybe on *Salix*. However, nothing is known about the preimaginal stages of the new species and its ecological niche with certainty. The adults have been observed at light during the first half of the night.

The related *A. consociella* feeds on *Quercus* whereas the host-plant of *A. xanthogramma* remains unknown.

Distribution: At present *A. foroiuliensis* sp. n. is only known from the north-eastern part of Italy (Friuli Venezia Giulia and Veneto) where it is restricted to small, relict wetland habitats close to or at the coastline.

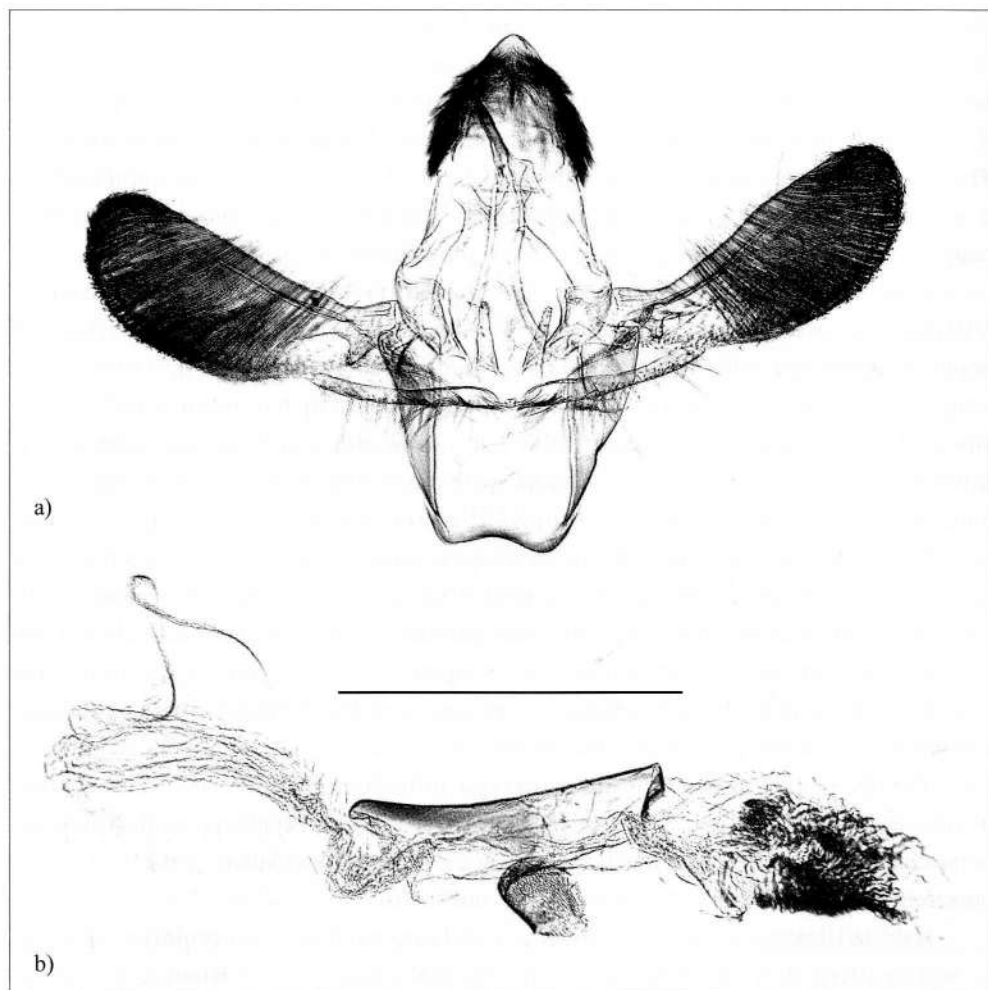


Fig. 3 - Male genitalic structures of *Acrobasis foroiuliensis* sp. n. (paratype); a) genitalia capsule; b) phallus (scale bar 1 mm); c) segment VIII.

- Apparato genitale maschile di *Acrobasis foroiuliensis* sp. n. (paratipo); a) capsula genitale; b) fallo (scala: 1 mm); c) segmento VIII.

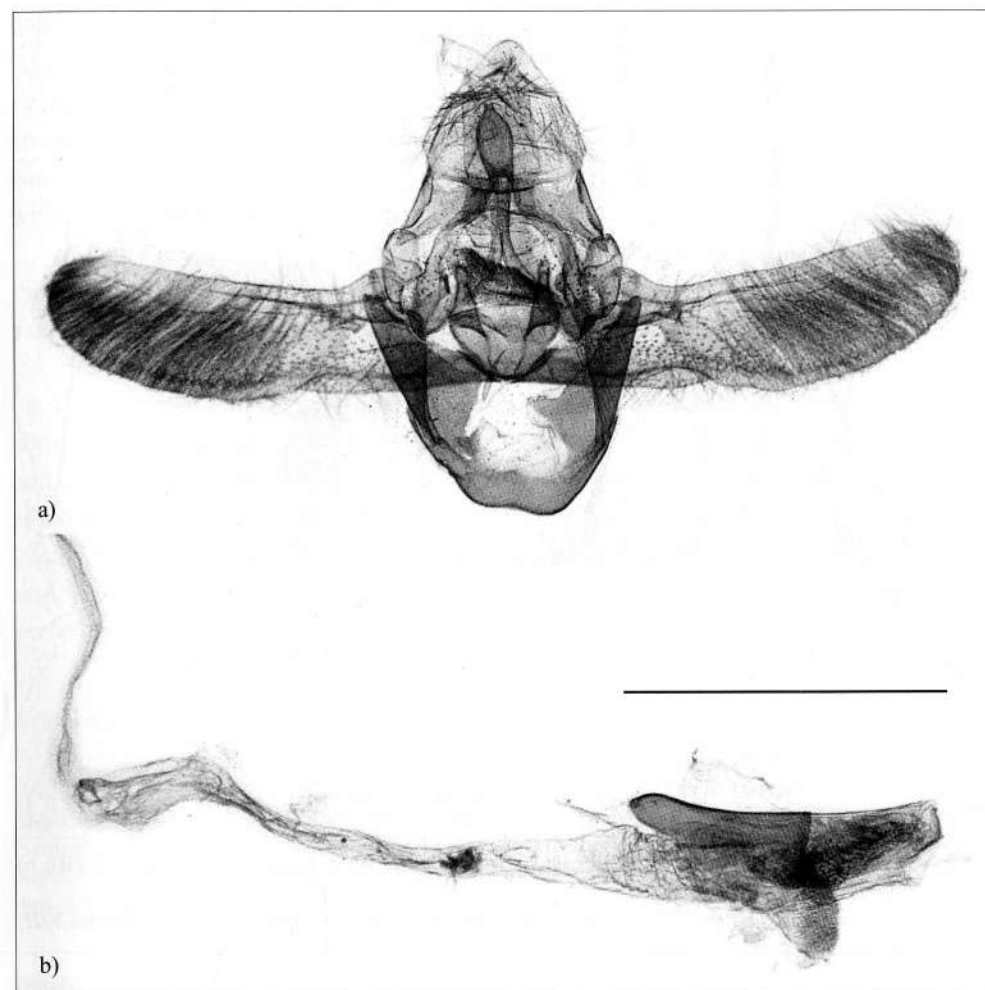


Fig. 4 - Male genitalic structures of *Acrobasis xanthogramma* (STAUDINGER, 1870). Holotype (by monotype), Chiclana, gen. prep. U. Roesler 8966, coll. Staudinger, ZMHB; a) genitalia capsule; b) phallus (scale bar 1 mm).

- Apparato genitale maschile di *Acrobasis xanthogramma* (STAUDINGER, 1870). Olotipo (dal monotipo), Chiclana, gen. prep. U. Roesler 8966, coll. Staudinger, ZMHB; a) capsula genitale; b) fallo (scala: 1 mm).

A. xanthogramma is hitherto only recorded from southern Spain. On the contrary *A. consociella* is widely distributed from western Europe to Transcaucasia.

Derivatio nominis: The specific name is a noun in apposition and refers to the roman settlement Forum Iulii, today's Cividale del Friuli, which gave its name to the whole region of Friuli.

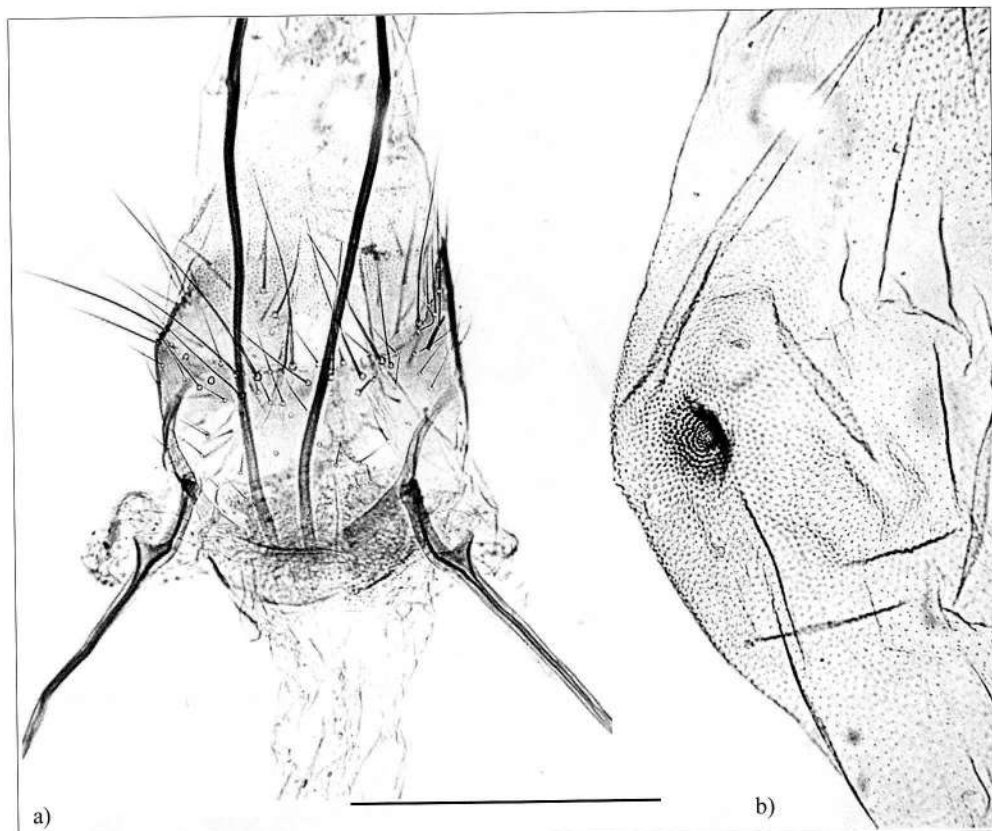


Fig. 5 - Female genitalic structures of *Acrobasis foroiuliensis* sp. n. (paratype); a) segment VIII; b) signum (scale bar 0.5 mm).
 - Apparato genitale femminile di *Acrobasis foroiuliensis* sp. n. (paratipo); a) segmento VIII; b) signum (scala: 0,5 mm).

Discussion

Acrobasis is one of the Pyraloidea genera which is in strong need of revision. However, due to the number of involved species, enriched by the synonymization of *Conobathra* and *Trachycera* with *Acrobasis* (LERAUT, 2005), such a monograph is not to be expected in a foreseeable future. Identification of Palearctic species is therefore presently mainly based on external characters such as the colour and pattern of the forewing which usually makes separation of species possible. This also applies to *A. foroiuliensis* sp. n., which however is externally very similar to *A. xanthogramma*. Differences in wing pattern elements of these two taxa as given above are based on one specimen of *A. xanthogramma* only. Within *A. consociella*, we observed a variation of shape and width of the antemedian line which goes

far beyond differences between *A. foroiuliensis* sp. n. and *A. xanthogramma*. However, the type-series of *A. foroiuliensis* sp. n. shows only very limited variation in this character and *A. xanthogramma* does not fall into this range of variation. Furthermore, in genitalia we find strong support to separate *A. foroiuliensis* sp. n. from both *A. consociella* and *A. xanthogramma*, though genitalia characters are often of limited value only to separate species within the genus depicting these structures for all taxa.

Many European species of *Acrobasis* are characteristic for afforested mesophilous to thermophilous habitats, and most of the species feed on *Quercus* or woody Rosaceae. The exclusive record of *A. foroiuliensis* sp. n. in wetland habitats is therefore surprising and indicates a different biology. Wetland areas such as bogs and fens have covered vast areas of the Padanian plane in ancient times. However, nowadays they are reduced to small spots which are usually protected. The recent faunistic research within this area has revealed numerous most interesting records including new species (HUEMER, 2002; HUEMER et al., 2005; MIKKOLA, 1998). *A. foroiuliensis* sp. n. could be interpreted as a further relict species of the Padanian plane since it is unlikely that such a conspicuous species was overlooked in better explored parts of the Mediterranean.

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