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New and little known Grapholitini (Lepidoptera, Tortricidae) from the Mediterranean area

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Summary

Two new species of *Cydia* Hübner, from Greece (*C. johanssoni* sp.n.) and Tunisia (*C. tunisiana* sp.n.), and a new species of *Lathronympha* Meyrick from Greece (*L. christenseni* sp.n.) are described. The female genitalia of *Dichrorampha letarfensis* Gibeaux and the male genitalia of *Cydia alienana* Caradja are figured for the first time. A note on *Cydia plumbiferana* Staudinger is given.

Zusammenfassung

Zwei neue Arten der Gattung *Cydia* Hübner aus Griechenland (*C. johanssoni* sp.n.) und Tunesien (*C. tunisiana* sp.n.) und eine neue Art der Gattung *Lathronympha* Meyrick aus Griechenland (*L. christenseni* sp.n.) werden beschrieben. Die weiblichen Genitalien von *Dichrorampha letarfensis* Gibeaux und die männlichen Genitalien von *Cydia alienana* Caradja werden erstmals abgebildet. Eine Bemerkung zu *Cydia plumbiferana* Staudinger wird angefügt.

Résumé

Description de deux espèces nouvelles de *Cydia* Hübner (*C. johanssoni* sp.n. de Grèce et *C. tunisiana* sp.n. de Tunisie) et d'une espèce nouvelle de *Lathronympha* Meyrick (*L. christenseni* sp.n. de Grèce). Les genitalia femelles de *Dichrorampha letarfensis* Gibeaux et les genitalia mâles de *Cydia alienana* Caradja sont figurés pour la première fois. Avec une notice sur *Cydia plumbiferana* Staudinger.

Introduction

Identification work on Tortricidae : Olethreutinae - Grapholitini in the collections of the Zoological Museum, University of Copenhagen (ZMUC) revealed undescribed species belonging to the genera *Cydia*

Hübner and *Lathronympha* Meyrick. The main part of the material has been collected by the second author during several expeditions for ZMUC to N. Africa and Greece in the years 1986-1990. The material also contains specimens collected by other entomologists, and among them two new species collected by Mr. Roland Johansson and Mr. Georg Christensen respectively, were present. In this paper taxonomically important discoveries are presented. It is planned to communicate new faunistic records elsewhere.The Palaearctic Grapholitini (Laspeyresiini) were revised by Danilevsky & Kuznetsov (1968). Their book was written in Russian, and this may be the reason why their classification (which we believe is sound) was not adopted by subsequent authors in western Europe. Based on the works of Danilevsky & Kuznetsov, together with papers published by other authors during the last 20 years (mainly on the *Cydia succedana* group), we consider the present knowledge of Palaearctic Grapholitini as sufficient to enable descriptions of new taxa.

Dichrorampha letarfensis Gibeaux, 1983

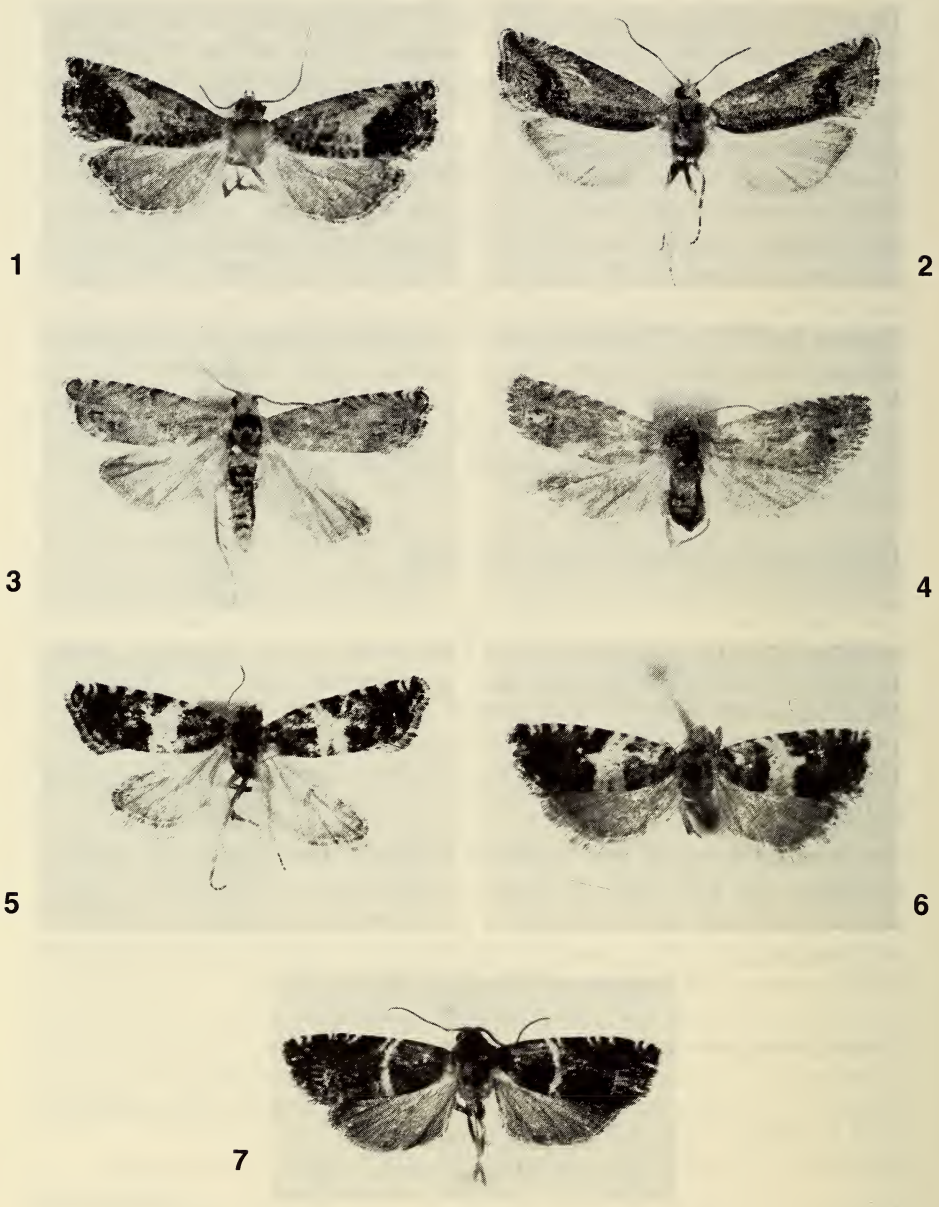
The description of *Dichrorampha letarfensis* Gib. was based on 5 ♂♂ collected at LeTarf in Algeria 25.IV.1903 by D. Lucas (Gibeaux, 1983). In ZMUC the following specimens are present: 2 ♂♂, 1 ♀ Morocco, Chechaoue 600 m 22.IV.1989 ZMUC Exp., O. Karsholt leg.; 1 ♂, 1 ♀ in copula, Tunisia, 30 km W Bizerte, Teskraia 25.III.1986 ZMUC Exp., O. Karsholt leg. An additional male from Teskraia is deposited in the collection of L. Aarvik.

The female genitalia are shown in Fig. 22. Externally, this species resembles the European *D. acuminatana* (Lienig & Zeller, 1846), and the genitalia also associate it with the same group of species as *acuminatana*, viz. the *consortana* group in the subgenus *Dichrorampha* (Danilevsky & Kuznetsov 1968 : 175-184).

Cydia johanssoni sp.n.

Holotype ♂ (gen. prep. AB1991 L. Aarvik) : Greece, Kos, Asfedion 6-12.X.1988, R. Johansson leg., ZMUC coll.
Paratype ♂ (gen. prep. AA1991 L. Aarvik): idem, ZMUC coll.

Description, Male (Fig.1): Wingspan 16 mm. Palpus cream with dark brown tip ; face dirty white ; vertex, thorax and base of tegulae brownish grey ; tegulae posteriorly cream. Forewing ground colour cream, with slight ochreous tinge ; basally and along dorsum with many grey wavy markings ; three or four small, black spots near base ; an



Figs 1-7. Adults of Grapholitini. 1 - *Cydia johanssoni* sp.n., holotype ; 2 - *Cydia blackmoreana* (Wals.), male, Libya ; 3 - *Cydia tunisiana* sp.n., male paratype ; 4 - *Lathronympha christenseni* sp.n., holotype ; 5 - *Cydia* ? *plumbiferana* (Stgr), male, Greece, Taiyetos Mts ; 6 - *Cydia plumbiferana* (Stgr), holotype ; 7 - *Cydia alienana* (Car.), male, Turkey, Mersin.

unmarked patch, where the ground colour stands out, situated slightly beyond midpoint and extends towards apex. This patch is outwardly bordered by a dark brown s-shaped element, which in turn is bordered on both sides by black scales ; mirror with about seven black streaks or dots, inwardly bordered by a plumbeous patch, outwardly by a plumbeous line which is broken in the middle ; apex with arched plumbeous line ; four distinct pairs of costal strigulae in apical half of wing, a few lighter marks on costa in basal half. Hind wing fuscous ; with double cilia line, the inner one stronger than the outer one.

Female : Unknown.

Male genitalia : (Figs. 8, 15). Extremely similar to those of *C. blackmoreana* (Walsingham, 1903) (cf. Danilevsky & Kuznetsov, 1968 : 479, fig. 344). In *johanssoni* sp.n. there are 5-6 cornuti in aedeagus (9-10 in *blackmoreana*), and the lateral appendage of aedeagus is longer than one third of length of aedeagus (less than one quarter of length of aedeagus in *blackmoreana*). This appendage is in both species armed with small denticles, most prominent in *johanssoni* sp.n. (compare Figs. 15 and 16).

Etymology : Named in honour of its collector, Roland Johansson, Sweden, well known for his studies on the Nepticulidae and outstanding paintings of these tiny moths, and other Microlepidoptera.

Remarks : *C. johanssoni* sp.n. belongs to a group of closely related species (the multistrianae section) which was established by Diakonoff (1976) because of their "very characteristic shape of the valva". It differs externally from its presumed close relative, *C. blackmoreana* (Fig. 2), by its broader forewing, darker hindwing and the different forewing pattern (Fig. 1) and more resembles *Pammene fasciana* (Linnaeus, 1761). Externally, *johanssoni* is also very different from the other species of the multistrianae section : *sumptusana* (Rebel, 1928), *multistriana* (Chrétien, 1915) and *elpore* (Diakonoff, 1976).

Cydia tunisiana sp.n.

Holotype ♂ (gen. prep. Y1991 L. Aarvik) : Tunisia, Tabarka area 7-18.V.1988 ZMUC Exp., O. Karsholt leg., ZMUC coll.
Paratypes : 1 ♂, 2 ♀♀ idem (one ♀ with genitalia prep. Z1991 L. Aarvik), ZMUC coll.

Description, male (Fig. 3) and female : Wingspan 10.5-12 mm. Palpus and face white ; vertex and tegulae cream ; abdomen greyish hite ; anal tuft white. Forewing ground colour light ochreous brown ; a pale patch

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Figs 8-11. Male genitalia of *Cydia* Hb. 8 - *C. johanssoni* sp.n., holotype, gen. prep. AB1991 ; 9 - *C. tunisiana* sp.n., holotype, gen. prep. Y1991 ; 10 - *C. medicaginis* (Kuzn.), gen. prep. K1991 ; 11 - *C. alienana* (Car.), gen. prep. CB1991.

at about middle of dorsum extends towards apex and forms a faint dorsal spot ; mirror with two or three black streaks, bordered below, outwardly and inwardly by plumbeous patches ; seven pairs of light costal strigulae present, dark brown scales between each pair ; a dark line around apex and one along termen, no such line at tornus. Fringes brownish grey, except a lighter patch just below apex. Hindwing light grey ; inner cilia line distinct, outer one very faint.

Male genitalia (Fig. 9) : Valva broad, ventral edge with semicircular excision, apex of sacculus almost forming a right-angle ; ventral angle of cucullus with tooth, surface of valva with continuous band of bristles from before middle of sacculus to apex of cucullus. Aedeagus bent, apical two thirds of even width, lateral appendage smooth, four cornuti (Fig. 17)

Female genitalia (Fig. 21) : Lamella postvaginalis large, complete ; ostium ring strong, asymmetrical ; posterior part of ductus bursae sclerotised ; signa of equal size.

Remarks : *C. tunisiana* sp.n. belongs to the *Cydia succedana* group. This group may be divided into two subgroups, defined by their respective possession or lack of sclerites in the ductus bursae (Burmann & Pröse, 1988 : 194). *C. tunisiana* sp.n. can together with *vallesiaca* Sauter, 1968, *intexta* Kuznetsov, 1962 and *medicaginis* Kuznetsov, 1962 be placed in the group with sclerotised ductus bursae. *C. albipicta* (Sauter, 1968) may also belong here, but differs by its unusually developed appendage of the aedeagus. All the species mentioned (except *albipicta*) are further characterised by their small and smooth lateral appendage of the aedeagus.

C. tunisiana sp.n. may at once be separated from *vallesiaca* and *intexta* externally ; both *vallesiaca* and *intexta* are strongly patterned species resembling *C. succedana* (Denis & Schiffermeer) (cf. Sauter, 1968 : 229, figs. 1-3).

C. medicaginis is the species of this subgroup which bears the closest external similarity with *tunisiana* sp.n. It differs from *tunisiana* sp.n. by its slightly darker and more uniformly coloured forewing, without any trace of a dorsal spot. Recently, O.K. had the opportunity to examine the type series of *medicaginis* in the collection of the Zoological Institute, Academy of Sciences, St. Petersburg. These specimens match *medicaginis* as figured by Agassiz & Karsholt (1989), even though those authors had doubted this. No specimens of *tunisiana* were found in that collection.

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Figs 12-14. Male genitalia of *Cydia* Hb., aedeagus in situ. 12 - *C. johanssoni* sp.n., holotype, gen. prep. AB1991 ; 13 - *C. blackmoreana* (Wals.), gen. prep. R1991 ; 14 - *C. blackmoreana* (Wals.), gen. prep. S1991.

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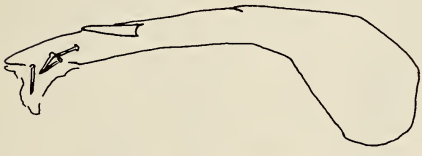

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Figs 15-18. Aedeagus of *Cydia* Hb. 15 - *C. johanssoni* n.sp., holotype, gen. prep. AB1991 ; 16 - *C. blackmoreana* (Wals.), gen. prep. S1991 ; 17 - *C. tunisiana* sp.n., holotype, gen. prep. Y1991 ; 18 - *C. medicaginis* Kuzn., gen. prep. K1991.

In the male genitalia, *C. albipicta* and *intexta* differ from *tunisiana* sp.n. by their rounded apex of the sacculus (cf. SAUTER 1968 : 235, figs. 1-6). *C. medicaginis* differs from *tunisiana* sp.n. by the more prominent incision in the ventral margin of the valva (Fig. 10), and fewer bristles, especially at the "neck". The lateral appendage of aedeagus (Fig. 18) is smaller than in *tunisiana* sp.n. (Fig. 17). In *medicaginis* the cucullus of the valva varies somewhat in shape ; extremes are figured by DANILEVSKY & KUZNETSOV (1968 : 499, fig. 363), and AGASSIZ & KARSHOLT (1989 : 195, fig. 3a) respectively.

In the female genitalia *C. tunisiana* sp.n. differs from the other species of this subgroup by its larger and differently shaped lamella postvaginalis. The sclerotised structure inside the ostium ring where the ductus bursae enters the ring, is more strongly developed than in *vallesiaca*, *intexta* and *medicaginis* (cf. DANILEVSKY & KUZNETSOV, 1968 : 503, fig. 366 ; SAUTER, 1968 : 237, figs. 3-4).

The type locality is situated in NW Tunisia, only a few hundred metres from the Mediterranean Sea. It is a *Pinus* forest with sandy clearings covered with evergreen oaks, brooms and scattered herbs. The moths were disturbed from vegetation during the afternoon.

Cydia plumbiferana (STAUDINGER, 1871)

The description of this species was based on a single female from Greece (Fig. 6). The specimen is figured by KENNEL (1921, pl. 24, fig. 1). Its genitalia are depicted by OBRAZTSOV (1959 : 180, fig. 39), and by DANILEVSKY & KUZNETSOV (1968 : 503, fig. 365), who placed *plumbiferana* in the *succedana* group. DIAKONOFF (1976 : 95) believed to have found a male of this species among tortricids collected by J. KLIMESCH (also in Greece) and figured the genitalia (p. 96, fig. 3) of this male specimen. PRÖSE (1988 : 260) suggested that the female holotype and the male mentioned by DIAKONOFF might not be conspecific. He writes that the figure of male genitalia of *plumbiferana* published by DIAKONOFF resembles *C. intexta* (KUZN.). They are, however, clearly different. Moreover, in the opinion of PRÖSE the holotype of *plumbiferana* could be conspecific with *C. ilipulana* (WALSINGHAM, 1903) (= *dioszeghyi* (CAPUSE, 1970)), but the figures of the female genitalia of the holotype of *plumbiferana* differ from those of *ilipulana* figured by PRÖSE and seem to belong to another species.

At our request Dr. Wolfram MEY (MNHU, Berlin) kindly sent us the holotype of *plumbiferana*. It is a little faded, but otherwise in good condition. The abdomen is missing, as a genitalia preparation has been

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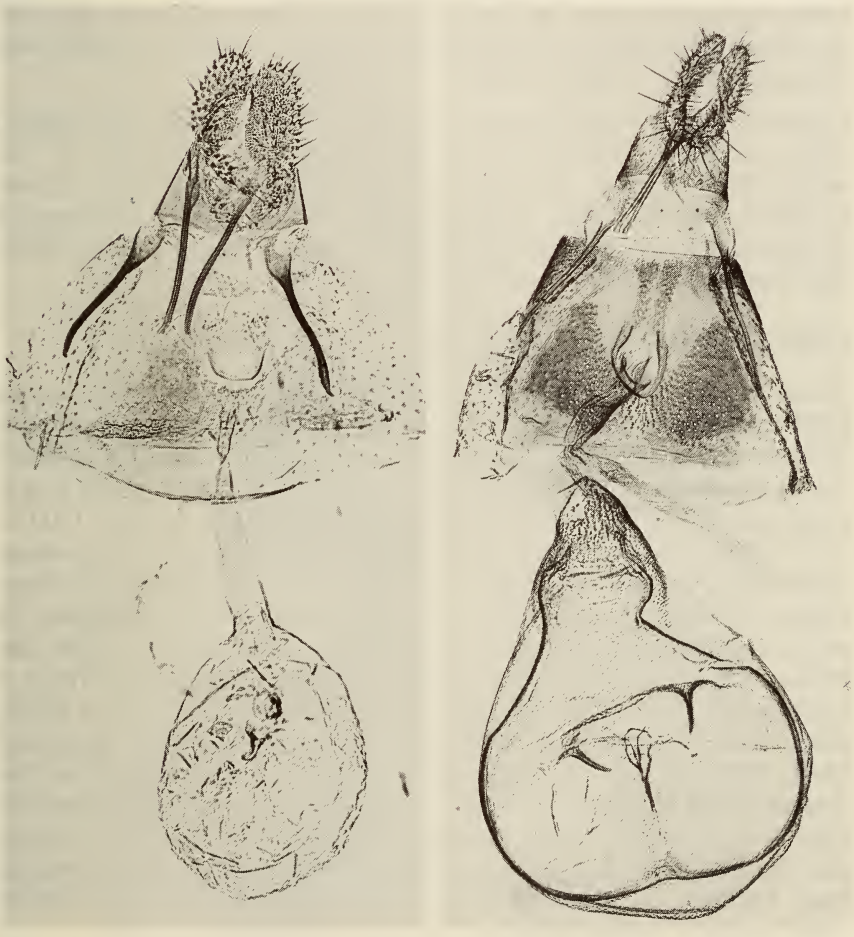

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Figs 19-21. 19 - *Lathronympha christenseni* sp.n., paratype, male genitalia, prep. AQ1991 ; 20 - *L. christenseni* sp.n., paratype, female genitalia, prep. BL1991 ; 21 - *C. tunisiana* sp.n., paratype, female genitalia, prep. Z1991.

made (N. Obraztsov no. 6), and Wolfram Mey considers that this was probably not returned with the specimen.

Nevertheless, in ZMUC there is a male (Fig. 5) agreeing closely with Kennel's figure and with genitalia agreeing with Diakonoff's figure. It has the following data : Greece, Pelopùnnisos, Taiyetos Mts. 950-1800 m 15-19.V.1990 ZMUC Exp., O. Karsholt leg. This specimen agrees in all elements of wing pattern with the type, but it is a little more slender winged, and has darker hairs on the head. Moreover, the second segment of the labial palpi is a little longer than in the type, and the scales on the third segment are of darker colour (cream-coloured in the type). We do not know if these differences are due to sexual dimorphism or individual variation. A series of males and females captured together could solve this problem.

Outside Greece *plumbiferana* has only been recorded from the Lebanon (Danilevsky & Kuznetsov (1968 : 502). This specimen, in the collection of the Zoological Institute in St. Petersburg, is also a female. It differs from the type of *plumbiferana* in colour and markings of the forewings and probably belongs to another species. Its genitalia have not been studied.

***Cydia alienana* (Caradja, 1916)**

In the description of *Grapholitha cosmophorana* var. *alienana* Caradja (1916) mentioned 2 ♂♂ and 1 ♀ from the USSR, Alai Mts. Danilevsky & Kuznetsov (1968 : 542) mentioned 2 ♀♀ and illustrated the genitalia of the female lectotype (1968 : 541, fig. 401). In ZMUC there is a ♂ collected at Turkey, Mersin, 10 km SE Arslanköy Taurus, 1300 m 11.VII.1987 M. Fibiger leg. (Fig. 7). We believe that this specimen represents the male of *C. alienana*. Externally, the Turkish specimen agrees reasonably well with the original description of *alienana*. Of particular significance is the characteristic, gently curved white line uniting the innermost costal strigulae and the dorsal spot. There is a discrepancy as to the wingspan of the specimens. Caradja (1916) stated it to be 18 mm. Danilevsky & Kuznetsov (1968) mentioned 14-16 mm, and as they also studied the lectotype of *alienana*, the measure given by Caradja must be erroneous. Our specimen measures only 11 mm. In this group, females are often much larger than males, and the difference in size between the Turkish male and the females from Alai Mts. (as given by Danilevsky & Kuznetsov) by no means rules out their conspecificity.

Laspeyresia pfeifferi Rebel, 1935 from mountains in N. Syria, "Marasch" (Rebel, 1935) probably represents a junior synonym of *C.*

alienana (Car.). Rebel's description of the forewing pattern agrees with that of the Turkish specimen in ZMUC, and with the original description of *alienana*. This view is supported by the very dark photograph of a (the?) type specimen published by Osthelder (1941, pl. XV, fig. 28). The genitalia of the Turkish specimen is shown in Fig. 11. They show affinity with those of *C. coniferana* (Saxesen, 1840), as also do the female genitalia of the lectotype of *alienana* figured by Danilevsky & Kuznetsov (1968).

Fig. 22. *Dichrorampha letarfensis* Gibeaux, female genitalia, prep. AJ1991.

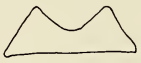
***Lathronympha christenseni* sp.n.**

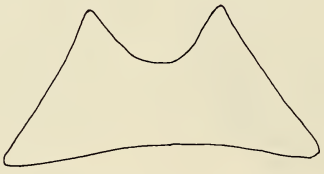
HOLOTYPE ♀ : Greece, Lakonia, 5 km S Monemvasia 7.IX.1982 G. CHRISTENSEN leg., ZMUC coll.
PARATYPES : idem ♀ 1.VIII.1978, ♂ 8.VIII.1979 (gen. prep. AQ1991 L. AARVIK), ♀ 6.VIII.1983, ♀ 25.VI.1986 (gen. prep. BM1991 L. AARVIK), all G. CHRISTENSEN leg. ; idem ♀ 4.VII.1984 B. SKULE leg. (gen. prep. BL1991 L. AARVIK), 1 paratype in coll. L. AARVIK, others in ZMUC.

DESCRIPTION, male, female (Fig. 4) : Wingspan 7-8 mm. Palpus dirty white ; head, thorax and tegulae ochreous ; abdomen grey. Forewing reddish ochreous ; mirror yellowish white, being the only distinct pattern element on the otherwise almost unicolorous forewing ; plumbeous scales form a patch below mirror, and a line on each side of it ; a few black scales present above mirror, sometimes also on both sides of it ; a few additional black and plumbeous scales near apex ; about five indistinct yellowish white costal strigulae present ; cilia concolorous with forewing. Hindwing and hindwing cilia grey, with distinct cilia line.

MALE GENITALIA (Fig. 19) : Valva short, bristly area on cucullus small, extending to about one third of valva ; tip of aedeagus narrowed.

FEMALE GENITALIA (Fig. 20) : Sterigma with straight, well demarcated lateral sides ; lamella postvaginalis trapezium-shaped ; ductus bursae entirely membraneous ; seventh sternite short, about five times wider than medial height (Fig. 23). As in other species of the genus, the sixth sternite is strongly sclerotised.





Figs 23, 24. Seventh sternite of female. 23 - *L. christenseni* sp.n., gen. prep. BL1991 ; 24 - *L. strigana* F., gen. prep. 1958.

Etymology : Named in honour of its discoverer, Mr. Georg Christensen, Greece, who has contributed much to the knowledge of Greek Microlepidoptera.

Remarks : The immediate impression of the moth is a dwarfish version of the common *Lathronympha strigana* (Fabricius, 1775). No other *Lathronympha* species is as small as *christenseni* sp.n. The male genitalia differ from those of *strigana* (and *albimacula* Kuznetsov, 1962) by a much shorter, more club-shaped valva. The valva of *christenseni* sp.n. is more like that of *L. balearici* Diakonoff, 1972 (cf. Diakonoff, 1972 : 66, fig. 1), but differs by its much smaller bristly area on the cucullus. In the female genitalia the short seventh sternite distinguishes it from *L. strigana* (Fig. 24) and other species of the genus.

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References

Agassiz, D. J. L. & Karsholt, O., 1989. *Cydia medicaginis* (Kuznetsov, 1962) (Lepidoptera : Tortricidae) in the British Isles. *Entomologist's Gaz.* 40 : 193-196.

Burmann, K. & Pröse, H., 1988. Eine neue *Cydia* aus den Südalpen : *Cydia cytisanthana* n.sp. (Lepidoptera : Tortricidae). *Studi trent. Sci. nat.*, 64, *Acta biol.* : 191-199.

Caradja, A., 1916. Beitrag zur Kenntnis der geographischen Verbreitung der Pyraliden und Tortriciden des europäischen Faunengebietes, nebst Beschreibung neuer Formen. *Dtsch. ent. Z. Iris* 30 : 1-88.

Danilevsky, A.S. & Kuznetsov, V.I., 1968. Tortricidae : Laspeyresiini [in Russian]. *Fauna SSSR*, 5 (1). 635 pp.

Diakonoff, A., 1972. Description of a new species of Laspeyresiini from the Balearic Islands (Lepidoptera, Tortricidae). *Ent. Ber., Amsterdam* 32 : 65-68.

Diakonoff, A., 1976. New and rare Mediterranean Laspeyresiini collected by Dr. J. Klimesch (Lepidoptera, Tortricidae). *Zool. Meded.* 50 : 91-105.

Gibeaux, C., 1983. *Dichrorampha letarfensis* sp. nov. (Lep. Tortricidae, Olethreutinae). *Alexanor* 13 : 74-75.

Kennel, J., 1908-1921. Die Palaearktischen Tortriciden. *Zoologica, Stuttg.* 21 (54). 742 pp., 24 pls.

Obraztsov, N. S., 1959. Die Gattungen der palaearktischen Tortricidae II. Die Unterfamilie Olethreutinae. 2. Teil. *Tijdschr. Ent.* 102 : 175-215, pls. 23-26.

Osthelder, L. 1941., Erklärung zu Tafel XV. *Mitt. münch. ent. Ges.* 31 : 2 [unnumbered] pp., pl. XV.

Pröse, H., 1988. Bemerkungen zur *Cydia succedana*-Gruppe im Alpen- und Mediterranraum (Lepidoptera, Tortricidae). *Stapfia* 16 : 257-271.

Rebel, H., 1935. *Lasp. pfeifferi* Rbl. nova sp. *In* Osthelder, L. : Lepidopteren-Fauna von Marasch in türkisch Nordsyrien. *Mitt. münch. ent. Ges.* 25 : 56-58, 67-90.

Sauter, W., 1968. Neue Arten der *Laspeyresia succedana* Schiff.- Gruppe (Lep. Tortricidae). *Mitt. schweiz. ent. Ges.* 40 : 226-239.

Staudinger, O., 1871. Beitrag zur Lepidopterenfauna Griechenlands. *Horae Soc. ent. ross.* 7 : 3-304, pls. 1-3.