


Description of a new species from Africa in genus *Coccothera* Meyrick, 1914, with additional taxonomic and faunistic information on two other *Coccothera* species (Lepidoptera: Tortricidae: Grapholitini)

urn:lsid:zoobank.org:pub:BC399325-A93E-4C05-B224-5252DA446D76

Published online: 15 June 2023

DOI: <https://dx.doi.org/10.4314/met.v34i1.5>

Knud Larsen 

Røntoftevej 33, 2870 Dyssegaard, Denmark. E-mail: knud.torts@gmail.com

Copyright © Lepidopterists' Society of Africa, Knud Larsen

Abstract: A new species from Africa is described in the genus *Coccothera* Meyrick, 1914 (Lepidoptera: Tortricidae: Grapholitini). *Coccothera albolineana* spec. nov. *Laspeyresia nicomacha* Meyrick, 1921 is transferred to *Coccothera* Meyrick, 1914 comb. nov. The unknown male is described and a full description of the hitherto only partly known female genitalia is presented. *Coccothera ferrifracta* Diakonoff, 1968 is a synonym of *Coccothera spissana* (Zeller, 1852) syn. nov. The genus *Coccothera* Meyrick, 1914 now contains eight species. Faunistic and distributional information of *Coccothera spissana* (Zeller, 1852), *C. nicomacha* (Meyrick, 1921) and *C. albolineana* spec. nov. is also presented.

Key words: Afrotropical Tortricidae, *Coccothera*, faunistics.

Citation: Larsen, K. 2023. Description of a new species from Africa in genus *Coccothera* Meyrick, 1914, with additional taxonomic and faunistic information on two other *Coccothera* species (Lepidoptera: Tortricidae: Grapholitini). *Metamorphosis* 34: 50–58

Peer reviewed

INTRODUCTION

Material from the author's numerous collecting trips to Africa and from museums and private collections has been examined by genital examinations and partly by DNA analysis. It was expected that the material would contain several cryptic species, but the thorough analysis of the extensive material of *Coccothera spissana* (Zeller, 1852) reveals that this species is rather variable both externally and especially in the male genitalia. The two remaining treated species were expected because of the characteristic outlook of imagines.

This is the first part of a revision of the genus *Coccothera* Meyrick, 1914.

METHODS AND MATERIALS

The majority of the material was collected with light traps powered by 125 W mercury vapour bulbs or 8 W super actinic tubes. A few specimens were caught flying in the afternoon around a large *Euphorbia* sp. plant in Tanzania: Iringa. Specimens of the treated species were caught in biotopes where other species from this group occurred.

The genitalia were mounted in euparal on slides in accordance with standard procedures (Robinson, 1976). Photos of genitalia were taken using a Toup Tek camera mounted on a Toup Tek binocular microscope. Photographs of specimens were taken using a Canon EOS50D camera and a 100 mm Canon macro lens.

Received: 18 April 2023

Accepted: 18 May 2023

Copyright: This work is licensed under the Creative Commons Attribution-NonCommercial-NoDerivs 4.0 International License.

To view a copy of this license, visit: <http://creativecommons.org/licenses/by-nc-nd/4.0/>

The type material has been deposited in the research collection of the author (KL) and will later be transferred to the Zoological Museum of Copenhagen (ZMUC).

The terminology of genitalia and morphological structures follows Horak (1991 & 2006), and the terminology of wing pattern elements follows Razowski (2003).

Abbreviations

Ht – holotype

Pt – paratype

spec. – specimen

spec. nov. – species nova

syn. nov. – synonym nova

comb. nov. – combination nova

gen. prep. – genital preparation

KL – research collection of Knud Larsen, Dyssegaard, Denmark

LA – Leif Aarvik, Oslo, Norway.

Meyr. – Meyrick

MfN – Museum für Naturkunde, Berlin, Germany

NHMO – Natural History Museum, University of Oslo

ZMUC – Zoological Museum, Natural History Museum of Denmark, Copenhagen, Denmark.

Zell. – Zeller

RESULTS

Coccothera Meyrick, 1914 is a genus with mainly Afrotropical distribution except *Coccothera spissana* (Zeller, 1852), which also occurs in dryer parts of the western Palearctic region. This genus including the present changes contains eight species (AfroMoths: accessed 30.iii.2023).

An overview of the changes in the generic definitions can be found in Razowski (2004 & 2019) and on AfroMoths (accessed 15.iv.2023).

Coccothera spissana (Zeller, 1852). Figs. 1–6.
Lepid. Micropt. Caffr. 82 (*Grapholita*)

Grapholita spissana Zeller 1852: 82; Diakonoff 1958: 74, Figs. 3–4, pl. 1, Fig. 4.

Eudemis spissana Walsingham 1891: 70, pl. III, Fig. 6.

Coccothera spissana Meyrick 1914: 189; Aarvik 2019: 327 Figs. 50–51, 85.

Coccothera ferrifracta Diakonoff 1968: 4–7, Figs. 5–7. syn. nov.

Grapholita pharaonana Kollar 1858: 154, pl. 5.

Grapholita sp.(pharaonana) Frauenfeld 1859: 41, pl. 7, Figs. 2a, b.

Pammene pharaonana Kennel 1921: 705, pls. 24, Fig. 106.

Cirriphora pharaonana Obraztsov 1951: 99, Figs. 1–2; Obraztsov 1961: 59, Figs. 119–122; Danilevskij & Kuznetsov 1968: 605 Figs. 461–462; Diakonoff 1983: 259, pls. 1, Fig. 13, Figs. 22–24; Razowski 1989: 212, Figs. 297 & 567.

Laspeyresia victrix Meyrick 1918: 12.

Coccothera victrix Razowski & Krüger 2007: 130, Figs. 118 & 302; Razowski & Trematerra 2008: 40, Figs. I.14 & IV.8.



Figure 1 – *C. spissana* (Zell.) ♂ 9 mm. Cameroun. Faro NP.



Figure 2 – *C. spissana* (Zell.) ♂ P. 3524 KL, 12 mm. Spain. Fuerteventura.

Material examined

Republic of South Africa:

Western Cape: 9 spec. Bontebok NP, Cape, Swellendam, 14–16.xi.1993 leg. Mey & Ebert, coll. MfN; 2 spec. Cape, Karoo NP, Beaufort West, 12–14.xi.1993 leg. Mey & Ebert, coll. MfN; 30 spec. Western Cape. Vermaaklikheid, Oshoek River Farm, 34°19'50" S, 21°01'19" E, 20–22.i.2016, 8 m. K. Larsen, L. Aarvik, A. Kingston, coll.

KL.; 1 spec. Western Cape: 2 km NNE Rheenendal, Gouldveld Forest, Forest Edge Lodge, 33°55'47" S, 22°56'18" E, 28.ii.2020, 250 m, leg. H. Hacker & H-P. Schreier, coll. KL;

Eastern Cape: 28 spec. 3,75 km SW Addo. River Front Estate, 33°33'06" S, 25°41'04" E, 26.ii.2020 34 m, leg. H. Hacker & H-P. Schreier, coll. KL; 4 spec. Eastern Cape: 30 km NE East London. Chintsa E., 32°49'21" S, 28°07'03" E, 24.ii.2020 45 m, leg. H. Hacker & H-P. Schreier, coll. KL; 3 spec. Mpumalanga: Hongonyi Lodge, S 24°27.17' S, 31°04.56' E, leg. Mey & Kühne, coll. MfN, gen. prep. ♀ 4386 KL; 1 spec. Mpumalanga: 9,15 km NE Mbombela. Leopard Tree Retreat, 673 m 25°26'24" S, 31°03'04" E, 17.ii.2020, leg. H. Hacker & H-P. Schreier, coll. KL;

Limpopo: 3 spec. Leopard Cove, 24°50'36" S, 28°07'09" E, 20 km WNW Bela-Bela, 15–17.xi.2022, 1265 m; 3 spec. Awelani Lodge, 8 km E Masisi, 22°26'04" S, 30°56'25" E, 23–25.xi.2022, 406 m; 1 spec. Madi A Thavha Lodge, 10 km WNW Louis Trichardt, 23°01'02" S, 29°49'40" E, 26–27.xi.2022, 1008 m; 2 spec. Adansonia Eco Lodge, 16 km SSW, Musina, 22°29'05" S, 29°59'58" E, 28–30.xi.2022, 590 m A. Kingston & K. Larsen leg., coll. KL;

Namibia: 3 spec. Gellap, 26°24' S, 18°00' E, 6.iii.2003. LF. leg. W. Mey; Rundu, Okavanga River, 27–28.iii.2003, leg. W. Mey; 3 spec. 10 km E Swakopmund, LF Swakop, 15.i.2007, leg. Mey & Ebert, coll. MfN, gen. prep. ♂ 3532 KL; 1 spec. Naukluft, Tsams-Ost, 3.xii.2008, leg. Ebert, Mey & Kühne; 4 spec. Auas Mts., Krumhuk, 1850 m, 24.i.2009, LF, leg. W. Mey, coll. MfN; 2 spec. E Caprivi: 15 km NW Ngoma, 930 m, 17°53' S, 24°34' E, 26.ii.2006 LF, leg. H. Hacker & H-P. Schreier, coll. KL; gen. prep. ♂ 4365 KL & ♂ 3531 KL;

Eswatini: 5 spec. Manzini P.: Dombeya Wildlife Es. 26°21'29" S, 31°32'58" E, 16–19.ii.2020, 415 m, leg. K. Larsen & A. Kingston, coll. KL; gen. prep. ♂ 4364 KL & ♂ 4367 KL;

Zimbabwe: 2 spec. Manicaland: Honde Valley, Nyanga, Aberfoyle Lodge, 850 m, 18°17'40" S, 32°58'08" E, 12–15.xi.2017, leg. K. Larsen, A. Kingston & A. Cipolla, coll. KL; gen. prep. ♀ 3529 KL; 1 spec. Masvingo, Munze Forest Lodge, 20°08'21" S, 31°03'58" E, 21–25. xi. 2017, 1090 m, leg. K. Larsen, A. Kingston & A. Cipolla, coll. KL;

Tanzania: 1 spec. Morogoro dist. & town, 550–600 m, 2.xii.1992, leg. L. Aarvik, coll. NHMO; 1 spec. Iringa: Udzungwa, Mang'ula, 23.xi.2004, 350 m, leg. K. Larsen & T. Zandersen, coll. KL; 1 spec. Iringa: 12 km E. Iringa, 1600 m, 24–25.xi.2004, leg. K. Larsen & T. Zandersen, coll. KL; gen. prep. ♂ 4370 KL; 1 spec. Iringa, Tungamalenga, 1000 m, 20 km. E Ruaha N.P. 6–7.xii.2004, leg. K. Larsen & T. Zandersen, coll. KL; gen. prep. ♂ 4165 KL; Morogoro: Kiday, 580 m, 14 km E. Mbuyuni "Baobab Valley", 8–9.xii.2004, leg. K. Larsen & T. Zandersen, coll. KL; gen. prep. ♀ 3537 KL; 1 spec. Nadosoito, Sepeko Ward, 13.vii.2009 leg. J. Lossini & U. Dall'asta, coll. KL; gen. prep. ♀ 3530 KL;

Kenya: 1 spec. Rift Valley, I. Naivasha, 6000 ft, 12.vii.1999, leg. et coll. D. Agassiz; 1 spec. Kakamega Forest, 1590 m, 00°21' N, 34°51' E, 28.iii.2003, leg. J. & W. De Prins, coll. KL; Rift Valley: Laikipia, Mpala Research Station, 1710 m, 37NBA 6603 3216, 26–28.xi.2008, leg. L. Aarvik, D. Agassiz & A. Kingston, coll. Agassiz; 1 spec. Rift Valley, Naivasha, 1915 m, 00°46'56"

S, 36°25'23" E, 16.xi.2012, Agassiz, Beavan, Heckford & Nguigi, coll. Agassiz;

Ethiopia: 12 spec. Oromia, 04°57'50" N, 37°52'55" E, 1 km W vill. Aluweya, 10.xi.2010, 1300 m, Li, leg. J. De Freina, H. Hacker, H. Peks & H-P. Schreier, coll. KL; gen. prep. ♂ 3541 & 3542 KL; 2 spec. Afar: 08°50'52.3" N, 40°00'16.5" E, Awash, Awash NP, river/shrub savanna, 15.02.2012, 952 m, Li/LiTr, leg. H. Hacker & H-P. Schreier, coll. KL; 1 spec. Southern, 06°01'32.8" N, 37°34'03.8" E, Arba Minch, Nechisar NP headquarters, 26.ii.2012, 1196 m, Li/LiTr, leg. H. Hacker & H-P. Schreier, coll. KL; 2 spec. Addis Abeba, 5.iii.1981 & 20.i.1983, leg. Angenstein, coll. KL; gen. prep. ♂ 3533 & 3534 KL;

Cameroon: 21 spec. Garoua: Faro Nat. Park. 300 m. 08°23'36.4" N, 12°49'29.3" E, 28.iv–9.v.2005, leg. K. Larsen & T. Zandersen, coll. KL; gen. prep. ♂ 3519 KL; ♂ 3520 KL; ♂ 3521 KL; ♂ 3522 KL; ♂ 3523 KL; ♂ 3526 KL; ♂ 3527 KL; ♂ 3528 KL;

Ghana: 1 spec. Northern: Mole River, 20 km. E. of Gate, 180 m, 15.iii.2010, leg. K. Larsen & W. Kubasik, coll. KL;

Yemen: 3 spec. Lbb: 5 km NNE Al Qa'idah, 1870 m., 13°47.84' N, 44°10.41' E, 28.iv.1998, leg. M. Fibiger, coll. KL; 1 spec. Al Hudaydah: Jebel Burra, 25 km SE Bajil, 14°53' N, 43°26' E, 550 m, 29.ii–1.iii.2000, leg. M. Fibiger, coll. KL; 1 spec. Ta'izz: Wadi Sabá sw Ta'zz, village Hedra 1200 m, 13°26' N, 43°53' E, 4.iii.2000, leg. M. Fibiger, coll. KL; 28 spec. Lbb: Mahal al Houmeira, 5 km NNE Al Qa'idah, 13°45' N, 44°10' E, 6.iii.2000, 1900 m leg. M. Fibiger, coll. KL; gen. prep. ♀ 3543 KL; 1 spec. Lbb: Upper Wadi Malhama, village Alwadha, 14°03' N, 44°12' E, 9.iii.2000, 1900m, leg. M. Fibiger, coll. KL; gen. prep. ♂ 3544 KL;

Spain: 1 spec. Fuerteventura: Jandia, Barranco de Esquinzo, 1.ii–14.iii.2010, leg. R. Pass, coll. W. Schmitz; gen. prep. ♂ 3524 KL.

Remarks

Distribution: *Coccothra spissana* (Zell.) is a very widely distributed species living in the dryer part of the African savannah zone. Outside Africa it is found in Yemen, Saudi Arabia (Diakonoff, 1983) and the Canary Islands: Fuerteventura. The species is relatively new to the Canary Islands (Moreno, 2014). Kennel (1921) mentions the species from Bithynien, now northern Turkey and Razowski (1989) mentions the species from Algeria and Turkey, which has not been confirmed. Koçak & Kemal (2017 & 2018) do not list the species from Turkey.

Biology: The species is bred from swollen thorns (domatia) on different acacia trees (Agassiz & Aarvik, 2014; Aarvik, 2019), rather big galls on *Tamarix* (Kollar, 1858 & Frauenfeld, 1859), galls induced by the host-specific rust fungus *Ravenelia macowaniana* Pazschke on *Acacia karoo* Hayne (McGeogh, 1993 & McGeogh & Krüger, 1994) and in shoots and leaves of groundnut plants (Diakonoff, 1968). It is also reported living on the scale-insect *Ceroplasta* (Meyrick, 1914). The species is bred from galls on different species of *Tamarix* in Egypt around Cairo and the Sinai Peninsula, described in detail by Kollar (1858) & Frauenfeld (1859). Frauenfeld (1859) has found the species in combination with other gall living insects and he suggested that *C. spissana* is living in the galls but does not cause the galls. The author has searched the larva

intensively several times on *Tamarix* both in Morocco and the Canary Islands without any success.

Variation: The species varies considerably in size (wingspan 7–12 mm), extension and strengths of the metallic markings and in the extension of the black part of the median fascia. The ground colour varies from olive grey to black and the hindwings from nearly white to plain grey (Figs. 1, 2). The specimen from Fuerteventura (Fig. 2) is bigger and lighter with more whitish hindwings than other specimens from Africa, but it resembles the figured specimens at the website Lepiforum (accessed 15.iv.2023) bred from *Tamarix* from Egypt.

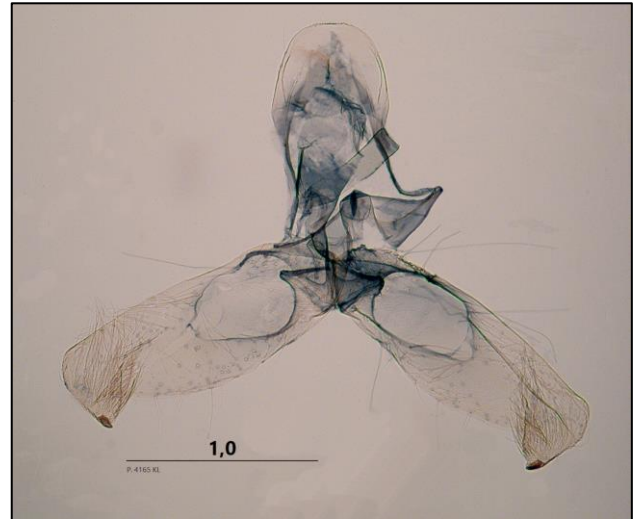


Figure 3 – *C. spissana* (Zell.) ♂ P. 4165 KL, Tanzania, Tungamalenga.

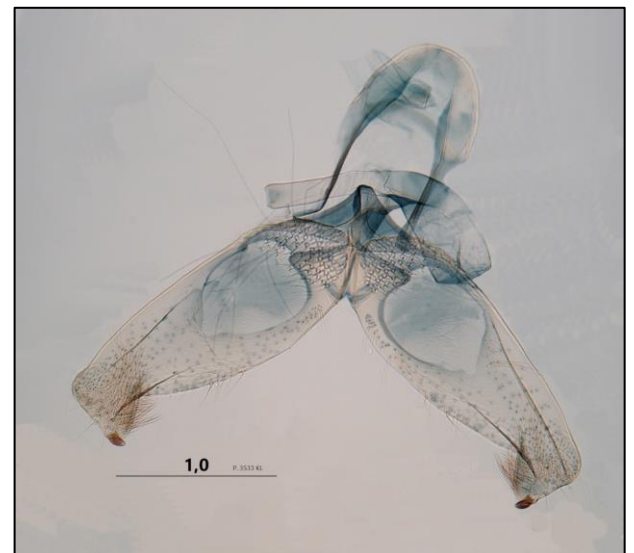


Figure 4 – *C. spissana* (Zell.) ♂ P. 3533 KL, Ethiopia, Adis Abeba.

Extensive examination of the genitalia from the whole range showed a wide range of variation presented in Figs. 3–5, especially in the lengths and size of the valva also illustrated by Danilevskij & Kuznetsov (1968). The length of the hair tufts at the base of the valva are also subject to high variation, but in the female genitalia (Fig. 6) the variation is rather limited.

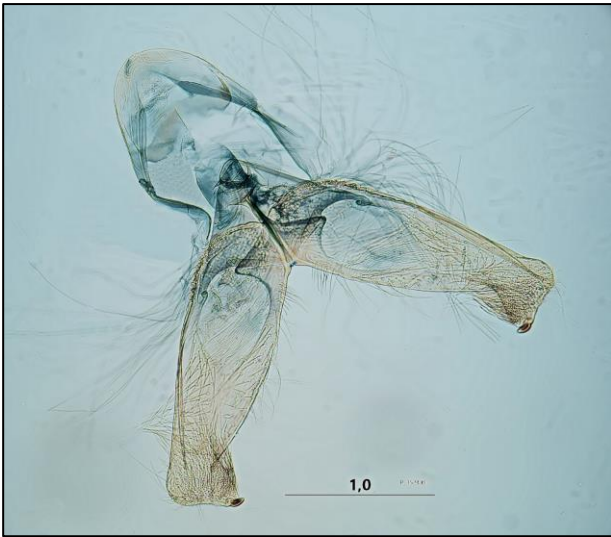


Figure 5 – *C. spissana* (Zell.) ♂ P. 3524 KL, Spain, Fuerteventura.

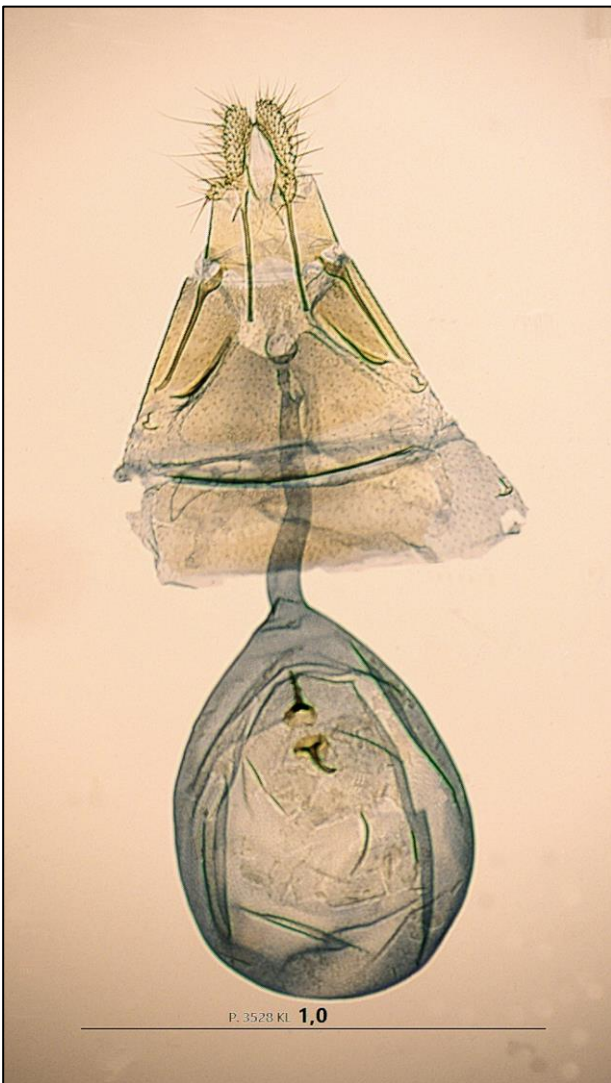


Figure 6 – *C. spissana* (Zell.) ♀ P. 3528 KL, Cameroun, Faro NP.

Results from a DNA analysis from Guelph, Canada (accessed 17.iv.2023) defined a maximum difference at 0.96% and average distance at 0.55%. A specimen from Spain, Fuerteventura (Fig. 2) has a distance to the nearest neighbouring species at 2.12%. The variation in the DNA

is a normal variation at intraspecific level. The results are based upon 11 records. Distance model: kimura 2 parameter. Marker: COI-5P. Pairwise distance.

When this work began it was expected that the taxon *C. spissana* (Zell.) could contain several cryptic species, but the results clearly demonstrate that it just is a variable species, maybe due to its wide distribution in Africa and adjacent areas.

Coccothera ferrifracta (Diakonoff, 1968) was described based on specimens hatched from shoots and leaves of groundnut found in Ghana at Kumasi. The figures of the male and female genitalia (Diakonoff, 1968) are exactly like the genitalia of *C. spissana* (Zell.). At the time of this description the male genitalia of *C. spissana* (Zell.) were not figured. Diakonoff (1968) redescribed the genus *Coccothera* on the basis of the specimens from Ghana and used the males from this sample to define the males in the genus, emphasizing that the hindwings have a cubital pecten. Aarvik (2019) describes this pecten as a pencil of grey sex scales. It is included in the original description of the genus *Coccothera* (Meyrick, 1914) and figured by Obraztsov (1961: 99 Fig. 1C). Of the present known species in *Coccothera* only *C. spissana* (Zell.) has a cubital pecten. Aarvik (2019) gave an overview of the synonymy of *C. spissana* (Zell.), noting that Razowski & Krüger (2007) omitted the sclerotized narrow folds along the lateral edges of tergum seven, which is also the case in Diakonoff's description of the female genitalia of *C. ferrifracta* (Diakonoff, 1968). Consequently *C. ferrifracta* is regarded as a new synonym of *C. spissana* (Zell.).

***Coccothera nicomacha* (Meyrick, 1921), comb. nov.**

Figs. 7–11.

Laspeyresia nicomacha Meyrick, 1921. Ann. Transv. Mus., 8(2): 61; Razowski & Krüger 2007: 135 Figs. 144 & 309.

Material examined

Namibia: 2 spec. E. Caprivi: 15 km NW Ngoma, 930 m, 17°53' S, 24°34' E, 26.ii.2006, Li/LiFa, leg. H.Hacker & H-P.Schreier, coll. KL; gen. prep. ♂ 3525 & 3535 KL;

Tanzania: 1 spec. Morogoro district & town, 550–600 m, 28.x.1992, leg. L. Aarvik, coll. NHMO; gen. prep. ♂ 2719 L. Aarvik; 1 spec. Morogoro district: Bunduki, 1300 m., 20.xi.1992, leg. L. Aarvik, coll. NHMO; gen. prep. ♀ 2721 L. Aarvik; 1 spec., Morogoro district & town, 550–600 m, 13.i.1993, leg. L. Aarvik, coll. NHMO; gen. prep. ♀ 2720 L. Aarvik; 3 spec. Iringa: 12 km. E Iringa, 1400 m, 8–9.iii.2003, leg. H. Hacker & H-P. Schreier, coll. KL; gen. prep. ♂ 3536 KL, 4368 KL & 4369 KL; 1 spec. Iringa: 12 km. E. Iringa, 1600, 24–25.xi.2004, leg. K. Larsen & T. Zandersen, coll. KL; gen. prep. ♂ 4369 KL;

Ethiopia: 1 spec. Southern, 08°13'49" N, 37°34'53" E, 23 km WSW Welkite, Giber, 28.x.2010, 1090 m, Li, leg. J. De Freina, H. Hacker, H. Peks & H-P. Schreier, coll. KL; gen. prep. ♀ 3540 KL.

Coccothera nicomacha (Meyrick, 1921) was described based on a single female and later the specimen and the remaining part of the female genitalia were figured (Razowski & Krüger, 2007).



Figure 7 – *C. nicomacha* (Meyr.) ♂ P. 3536 KL, 11 mm. Tanzania, Iringa.



Figure 8 – *C. nicomacha* (Meyr.) ♀ P. 2720 LA, 11 mm. Tanzania, Morogoro.

The slide only contained bursa and half of ductus bursa. In this genus the connection of the ductus bursa to sterigma is extremely fragile and will often break off under preparation of the slide. However, the species is easy to recognize on the wing pattern as well as on the genitalia.

The female holotype is labelled: [Zimbabwe]: Umtali [Mutare], [Southern] Rhod[esia], 5-I-[19]18 (A.J.T. Janse) gen. prep. 13654; type no. 1040.

Meyrick (1921) remarked that *L. nicomacha* is allied to *Laspeyresia victrix* Meyrick 1918.

Description

Imago: (Figs. 7–8). Wingspan 8–11 mm, ground colour dark grey to black with fine light beige strigulation. Wing shape triangular. Basal blotch bordered with a shiny metallic line and with a dorsal shiny metallic spot both dark lead coloured. The basal blotch can have darker shadows and marks. Median fascia present at costal half as a nearly square black area against apex with two projections and bordered with a light line. Speculum narrow reaching two thirds of the wing, lighter grey bordered with a fine black line more or less interrupted. Between the median fascia and speculum there is a round blotch divided by three to four fine black lines. The blotch is partially bordered with a fine black line. Three costal strigulae before apex. Termen with a black line interrupted by a postapical strigula. Fringes black. Hindwings dark grey to black, lighter towards basal part. Termen with a black basal line. Fringes divided black and light grey. Wing shape of females are squarer otherwise like males. The species is very variable in size and the markings can be more or less

pronounced. The figure of the type has a strong black mark in the basal blotch, but this is not a diagnostic character.

Male genitalia: (Figs. 9 & 10). The male genitalia vary considerable in size. Valva simple elongate with parallel sides, rounded, cucullus hairy, ventrally with a few small thorns, sacculus indistinct straight; vinculum triangular, strongly sclerotized; uncus very weak; pedunculus weak, rounded; length of phallus like the valva, sausage shaped, slightly oblique at the end.



Figure 9 – *C. nicomacha* (Meyr.) ♂ P. 3536 KL, Tanzania, Iringa.

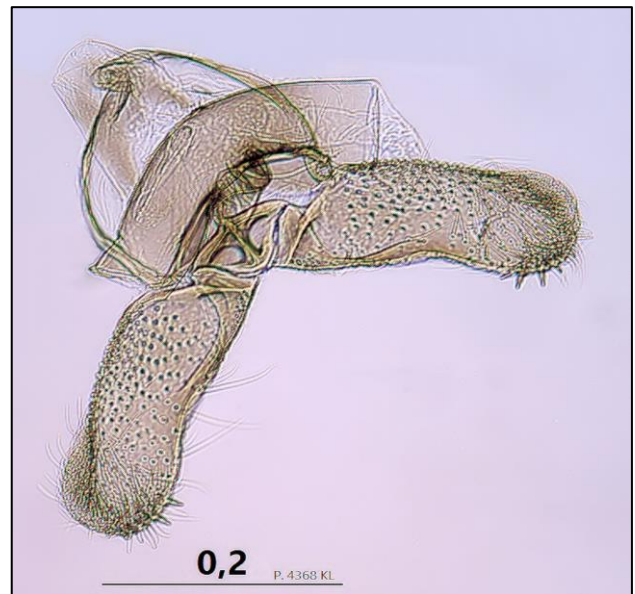


Figure 10 – *C. nicomacha* (Meyr.) ♂ P. 4368 KL, Tanzania, Iringa.

Female genitalia: (Fig. 11). Sterigma rounded; ostium indistinct; subgenital sternite weakly emarginated, broad; ductus bursa long, slender, slightly enlarged before bursa; bursa round with weakly sclerotized structure, two medium sized, thorn-shaped signa.

Diagnosis

Laspeyresia nicomacha Meyrick, 1921 resembles *C. spissana* (Zell.) and *C. albolineana* spec. nov.



Figure 11 – *C. nicomacha* (Meyr.) ♀ P. 2721 LA, Tanzania, Morogoro.

Imagines differ from *C. spissana* by the large black area in the upper half of the median fascia and with the round blotch divided by three to four fine black lines placed towards apex; from *C. albolineana* spec. nov. it differs by the larger size and by the dividing line on the fore wing which is shiny grey, not white. The male genitalia have a short rounded valva with a few thorns ventrally at the cucullus and a sausage shaped phallus. The female genitalia have a semicircular sterigma and two medium sized thorn-shaped signa. The subgenital sternite is broad and less emarginated dorsally.

Biology

Only the ten mentioned specimens and the type specimen from Zimbabwe are known. They are found from October to March. Localities are indistinct dryer savannah or bush land. Host plant is unknown.

Distribution

Zimbabwe, Namibia, Tanzania, Ethiopia.

Remarks

Coccothera nicomacha was originally placed in the genus *Laspeyresia* based on a single female although the genus *Coccothera* was erected already in 1914 by the same author. The definition may be due to the lack of material. The strongly strigulated wing and the shiny metallic lines and spots on the wing have the same structure as in *Coccothera spissana* (Zeller, 1852). The shape of valva and the general structure of both male and female genitalia define the species as belonging to the genus *Coccothera*.

Coccothera albolineana spec. nov. Figs. 12–16.

urn:lsid:zoobank.org:act:CCF07CF5-99BE-4CFE-81F4-C6F247E5356B

Material examined

Holotype: ♂, **Kenya:** Central: Naro Moru, 0°9'4.99" S, 37°0'37.57" E, 3–6.xi.2013, 1960 m, leg. D. Agassiz, S. Beavan, R. Heckford, K. Larsen & M. Ngugi, coll. KL later ZMUC; gen. prep. ♂ 4372 KL.

Paratypes: **Kenya:** 1 spec. Rift Valley, Lake Elementeita, 6000 ft, 15.xii.1999, leg. D.J.L. Agassiz, coll. Agassiz; gen. prep. ♀ 4373 KL; 1 spec. Rift Valley, Gilgil, 2100 m, 00°32' S, 36°22' E, 26.xi.2005, leg. D.J.L. Agassiz, coll. Agassiz; gen. prep. ♀ 4374 KL; 2 spec. Central: Naro Moru, 00°09'04.99" S, 37°00'37.57" E, 3–6.xi.2013, 1960 m, leg. D. Agassiz, S. Beavan, R. Heckford, K. Larsen & M. Ngugi, coll. KL; gen. prep. ♀ 4371 & ♀ 4375 KL.

Republic of South Africa: 1 spec. Limpopo: 10 km WNW Louis Trichardt, Madi A Thavha Lodge, 23°01'02" S, 29°49'40" E, 1008 m, leg. K. Larsen & A. Kingston; gen. prep. ♀ 4701 KL.



Figure 12 – *C. albolineana* spec. nov. ♀ P. 4701 KL, 8 mm. RSA, Louis Trichardt.



Figure 13 – *C. albolineana* spec. nov. ♀ P. 4371 KL, 8 mm. Kenya, Naro Moru.

Description

Imago: (Figs. 12–13). Wingspan 7–8 mm. Head grey, with white tipped scales, dorsally longer and raised scales. Thorax as head, abdomen dark grey. Antenna 50% of forewing, grey with fine white rings. Labial palps short, coloured as head, legs the same but with white spurs. Forewings triangular with slightly indented termen, ground colour dark grey to black with fine light beige strigulation bordered with a fine white cross line. Median fascia darker grey bordered towards basal blotch by a shiny metallic line reaching two thirds from dorsum in the middle partly interrupted by a small black spot. Speculum shiny metallic bordered dorsally with small black spots. Between speculum and costa, a small white area divided by four fine black lines gradually shorter against costa. Four white costal strigula. Termen with a black basal line, cilia grey. Hindwings deep brown, sometimes white towards base. At termen a bright light basal line. Cilia with a narrow deep brown shadow followed by a light area dorsally white. Underside of wings deep grey at base of hindwings sometimes lighter.

Male genitalia: (Fig. 14). Valva short, evenly wide with a round exceedingly small cucullus, weakly haired and with two tiny thorns ventrally. Pedunculus very weak and phallus short, sausage shaped with emarginated curved apex.

Female genitalia: (Figs. 15–16). Labium irregular, apophyses anterior short, broader at apex. Sterigma circular with sclerotized lamella postvaginalis. Subgenital plate strongly emarginated dorsally. Ductus bursa short and bursa with two tiny thorn-shaped signa.



Figure 14 – *C. albolineana* spec. nov. ♂ P. 4372 KL, Kenya, Naro Moru.

Diagnosis

Coccothera albolineana spec. nov. is defined by its small size, the white dividing line between basal blotch and median fascia and the round white blotch towards apex divided by four fine black lines. Speculum is dorsally half bordered with well-defined black spots. The male differs from *C. nicomacha* in the exceedingly small valva with tiny teeth at cucullus ventrally and in the shape of phallus. In the female genitalia it differs in the shape of sterigma



Figure 15 – *C. albolineana* spec. nov. ♀ P. 4701 KL, RSA, Louis Trichardt.

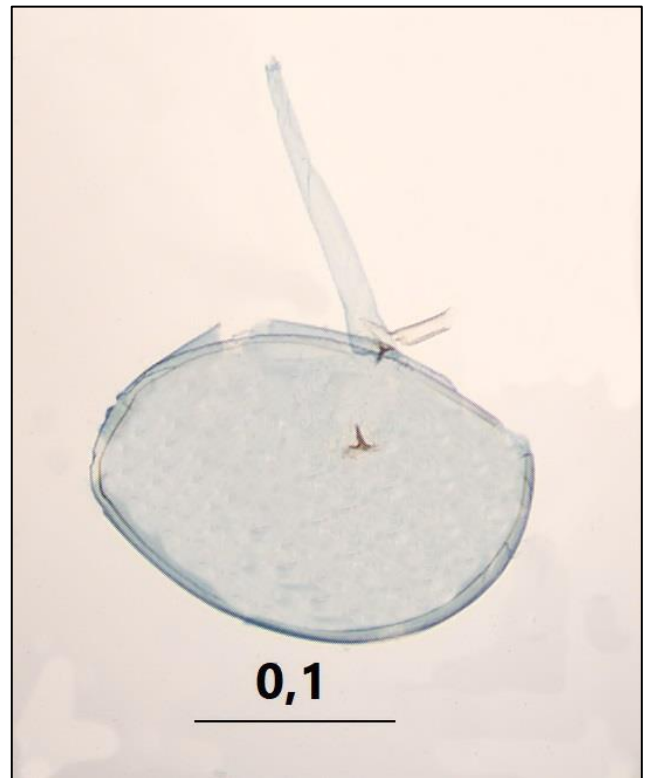


Figure 16 – *C. albolineana* spec. nov. ♀ bursa, P. 4701 KL, RSA, Louis Trichardt.

with sclerotized lamella postvaginalis and the strongly emarginated subgenital sternite, shorter ductus bursa and two very tiny thorn-shaped signa in bursa.

Biology

Only the six mentioned specimens are known, found from November to December. Localities are more dense forest savannah. Host plant is unknown.

Distribution

Kenya: Central and Rift Valley
Republic of South Africa: Limpopo province.

Etymology

The species is named after the characteristic white markings which make the species quite easy to identify.

DISCUSSION

The biology of *Coccothera* species is an unsolved riddle. Of the three species dealt with here only the biology of *C. spissana* is known, but only to a certain limit. It seems that the species itself does not produce the galls, but is somehow connected to galls on *Tamarix* and *Acacia*. It is not known if the larva lives off sap, parts of the galls or other insects producing the galls or are just living in the galls. The species has also been bred from groundnuts where it lives on shoots and young leaves, which also could be the case when living on the other host plants. The question might be solved by breeding experiments in the laboratory.

This is the first part of a revision of the genus *Coccothera* Meyrick, 1914 treating three species connected with savannah biotopes. The next part will treat the species from biotopes in rainforests.

ACKNOWLEDGMENTS

My thanks go to W. Mey (MfN), L. Aarvik (NHMO) and D. Agassiz for the loan of material from their collections and to Anthony Kingston, Shropshire, UK who has kindly provided linguistic assistance with the manuscript. The author is likewise grateful for the help and support of the Editor of *Metamorphosis* and the reviewers.

LITERATURE CITED

- AARVIK, L., 2019 (Tortricoidea). In: Mey W. & Krüger M. (Eds), The Lepidoptera fauna of a crater valley in the Great Escarpment of South Africa: The Asante Sana Project. *Esperiana Memoir* **8**: 313–347.
- AFROMOTHS. Afromoths <https://www.afromoths.net> (accessed 30.iii.2023, 15.iv.2023).
- AGASSIZ, D.J.L. & AARVIK, L. 2014: New Tortricidae (Lepidoptera) from East Africa with an account of the tortricid fauna of acacia in the Kenyan Rift Valley. *Zootaxa* 3861: 369–397.
<http://www.boldsystems.org/index>. (accessed 17.iv.2023).
- DANILEVSKI, A.S. & KUZNETZOV, V.I., 1968: Listovertki Tortricidae triba plodozhorki Laspeyresiini. *Fauna SSSR: Nasekomye Tsheshuekrylye* **5**: 1–635. Lauka, St. Petersburg
- DIAKONOFF, A., 1958. Zeller's types of African Tortricidae and Glyphipterygidae in the Stockholm Museum. *Entomologisk Tidskrift* **78** (1957): 69–80.
- DIAKONOFF, A., 1968. Descriptions of Exotic Microlepidoptera. *Zoologische Mededelingen* **43**: 1–5. Leiden.
- DIAKONOFF, A., 1983. Insects of Saudi Arabia. Lepidoptera: Fam. Tortricidae, Choreutidae, Brachodidae and Carposinidae. *Fauna of Saudi Arabia* **5**: 240–287.

- FRAUENFELD, G., 1859. Über exotische Pflanzenauswüchse, erzeugt von Insecten. *Verhandlungen der kaiserlich - königlichen zoologisch - botanischen Gesellschaft in Wien* **2**: 319–332, pls. 6–7.
- HORAK, M., 1991. *Morphology, Phylogeny and Systematics*: 1–22. In L. P. S. VAN DER GEEST & H. H. EVENHUIS (Eds). *World Crop Pests. Tortricid Pests. Their Biology, Natural Enemies and Control*, **5**: XVIII + 808 pp. Elsevier, Amsterdam.
- HORAK, M., 2006. Olethreutine Moths of Australia (Lepidoptera: Tortricidae). – *Monographs on Australian Lepidoptera* **10**: 522 pp. CSIRO, Canberra.
- KOÇAK, A.Ö. & KEMAL, M., 2017. Geographical codes used in the publications of the Cesa. *Cesa News* **135**: 1–41.
- KOÇAK, A.Ö. & KEMAL, M., 2018. A synonymous and distributional list of the species of the Lepidoptera of Turkey. *Memoirs* **8**: 1–488.
- KOLLAR, V., 1858. Naturgeschichte eines in den Gallen von *Tamarix articulata* Vahl. lebenden Wicklers: *Grapholitha Pharaonana* Kollar. *Wiener entomologische Monatschrift* **2**: 154–158 pl. 5.
- KENNEL, J., 1921. *Die Palaearktischen Tortriciden*. Stuttgart, 742 p., 24 pls.
- LEPIFORUM, 2020. <http://www.lepiforum.de/lepiwiki/pl> (accessed 15.iv.2023).
- MCGEOCH, M.A., 1993. The Microlepidoptera associated with a fungus gall on *Acacia karroo* Hayne in South Africa. *African Entomology* **1**: 49–56.
- MCGEOCH, M.A., 1994. Identification and diagnoses of Lepidoptera larvae inhabiting galls induced by *Ravenelia macozaniana* Pазschke on *Acacia karroo* Hayne in South Africa. *African Entomology* **2**: 37–43.
- MEYRICK, E., 1914. Descriptions of South African Micro-Lepidoptera. V. *Annals of the Transvaal Museum* **4**: 187–205.
- MEYRICK, E., 1918. Descriptions of South African Micro-Lepidoptera. *Annals of the Transvaal Museum* **6**: 7–59.
- MEYRICK, E., 1921. Descriptions of South African Micro-Lepidoptera. *Annals of the Transvaal Museum* **8**: 49–148.
- MORENO, A.V. 2014. *Catálogo Sistemático y Sinonímico de los Lepidoptera de la Península Ibérica, de Ceuta, de Melilla y de las islas Azores, Baleares, Canarias, Madeira y Salvajes (Insecta: Lepidoptera)*. 1184 pp. SHILAP. Madrid.
- OBRAZTSOV, N. 1951. Two new Palearctic genera of the tribe Laspeyresiini (Lepidoptera, Tortricidae). *Tijdschrift voor Entomologie* **93** (1950): 99–100.
- OBRAZTSOV, N. 1961. Die Gattungen der Palaearktischen Tortricidae. II. Die Unterfamilie Olethreutinae. 4. Teil. *Tijdschrift voor Entomologie* **104** (5): 51–70, tekstfigs. 107–126.
- RAZOWSKI, J., 1989. The Genera of Tortricidae (Lepidoptera). Part II: Palearctic Olethreutinae. *Acta Zoologica cracoviensia* **32** (7): 107–328.
- RAZOWSKI, J., 2003. *Tortricidae (Lepidoptera) of Europe. Olethreutinae* **2**: 301 pp. 95 + 18 pls. Frantisek Slamka, Bratislava.
- RAZOWSKI, J., 2004. Review of the genera of Afrotropical Tortricidae (Lepidoptera). *Acta zoologica cracoviensia* **47**: 167–210.

-
- RAZOWSKI, J., 2019. Diagnoses and remarks on the genera of Tortricidae (Lepidoptera). Part 6. Grapholitini. *Acta zoologica cracoviensia* **62**: 1–19.
- RAZOWSKI, J. & KRÜGER, M., 2007. An illustrated catalogue of the type specimens of Tortricidae in the Transvaal Museum, Pretoria (Lepidoptera: Tortricidae). *Shilap, Revista de lepidopterología* **35**: 103–179.
- RAZOWSKI, J. & TREMATERRA, P., 2008. On some Tortricidae (Lepidoptera) from Mozambique. *Redia* **41**: 33–40.
- ROBINSON, G.S., 1976: The preparation of slides of Lepidoptera genitalia with special references to the Microlepidoptera. *Entomologists' Gazette* **27**: 127–132.
- WALSINGHAM, T. de G., 1891. African Micro-Lepidoptera. *Transactions of the entomological Society of London* **1891**: 63–132, pls 3-7.
- ZELLER, P.C. 1852. Lepidoptera Microptera, quae J. A. Wahlberg in Caffrorum terra collegit. *Kongliga Svenska Vetenskaps-Akademiens Nye Handlingar* (Ser. 3) **40**: 1–120.