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DESCRIPTION OF *COCHYLIMORPHA SCALERCIANA* SP. N. (LEPIDOPTERA, TORTRICIDAE) FROM CALABRIA (ITALY)

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Trematerra P. – Description of *Cochylimorpha scalerciana* sp.n. (Lepidoptera Tortricidae) from Calabria (Italy).

Cochylimorpha scalerciana sp. n. is described as new, the latter belongs to *straminea* group. As adult *C. scalerciana* resemble *C. tiraculana* from West-Alps, genetically it is near *C. straminea* and *C. alternana*.

KEY WORDS: *Cochylimorpha scalerciana*, Lepidoptera Tortricidae, Calabria, Southern Italy, new species.

Over time, the Lepidoptera Tortricidae from the Calabria territory (Southern Italy) has received sporadic attention by both local and foreign entomologists. The only specific works refer to some catches taken on the southern slope of the Pollino Massif by TREMATERRA (1991) and in a chestnut area of the Sila Mountains by TREMATERRA *et al.* (1994). In a recent paper TREMATERRA *et al.* (2018) reported a tortricid list as updated and complete as possible for this region; up to a total of 181 taxa of the family Tortricidae, species belonging to all the tribes cited in the Italian fauna (TREMATERRA, 2003) have been found, with the exception of the members of the Sparganothini tribe.

During an expedition of 2015 by the entomologists dr Stefano Scalercio and dr Marco Infusino, few specimens of a new species belonging to genus *Cochylimorpha* Razowski, 1959 were collected. It is here described as new to science (Fig. I). The material was primarily identified morphologically, and supplemented by molecular data of the COI barcode region according to HAJIBABAEI *et al.* (2006) and RATNASINGHAM & HEBERT (2007).

The Genus *Cochylimorpha* includes 83 palaearctic species (RAZOWSKI, 2009); 36 species have been recorded from Europe (AARVIK, 2013) and 14 species from Italy (TREMATERRA 2003).

Cochylimorpha scalerciana sp. n.

MATERIAL EXAMINED – Holotype 1 male, Calabria, Sila, Vivaio Sbanditi (Cosenza), 1351 m, 25.V.2015, leg. Scalercio and Infusino. Paratypes 2 males, Calabria, Sila, Vivaio Sbanditi (Cosenza), 1351 m, 18.V.2015, leg. Scalercio and Infusino; 1 male, Calabria, Sila, Montagna Grande (Cosenza), 1355 m, 18.V.2015, leg. Scalercio and Infusino; 1 male, Calabria, Colle Macchie, Pedace (Cosenza), 1450 m, 18.V.2015, leg. Scalercio and Infusino. Materials are deposited in the Trematerra Collection (University of Molise, Campobasso, Italy).

DESCRIPTION – Adult (Fig. II, 1). Wing span 18-20 mm (male). Head and palps whitish-cream; torax silvery grey sprinkled with yellowish scales; abdomen dark silvery grey. Ground colour of forewing silvery whitish cream, suffused

and densely strigulated with yellowish-cream; cilia cream or pale whitish-cream. Hindwing greyish; cilia whitish-cream with brownish-grey basal line.

MALE GENITALIA (Fig. II, 2-4) – Socii fused small; tegumen large and sclerotized; valva rather slender, convex caudally, well sclerotized above sacculus; sacculus simple, well sclerotized without any angulation ventro-terminally; median part of transtilla broad, more or less concave, apically weakly spined; vinculum less developed; juxtae sub-trapezoidal; aedeagus elongated and robust, curved, sharp terminally; cornutus rather strong one fourth of aedeagus.

FEMALE GENITALIA – Unknown.

EARLY STAGES – Unknown.

BIOLOGY - Moth collected on 18-25 May 2015 up to 1351 m a.s.l. (in Calabria, Southern Italy). Sampling localities are comprised between 1351 and 1450 metres of altitude, all included within the Sila National Park. At Vivaio Sbanditi and Colle Macchie the species was found in conifers woodlots, the former mainly composed by *Abies alba* Mill. with *Fagus sylvatica* L. and *Castanea sativa* Mill. as accessory species, and the latter in a pure stand of *Pinus nigra* ssp. *calabrica* (Loudon) Cesca & Peruzzi. The locality of Montagna Grande is covered by shrubs with *Sarothamnus scoparius* (L.) W.D.J. Koch and *Rubus* sp. as dominant elements.

DISTRIBUTION – Southern Italy (in Calabria Region), on Sila Mountains.

ETYMOLOGY – The new *Cochylimorpha* is dedicated to my colleague dr Stefano Scalercio (Rende, Cosenza, Italy) who contributed to collect the material studied.

DNA BARCODING ANALYSES – Two specimens were submitted to DNA barcoding (specimen ID: LEP-SS-830; LEP-SS-831). Voucher material is stored at the University of Molise, Department of Agricultural, Environmental and Food Sciences, Campobasso (Italy).

Fig. I – Calabrian territory (Southern Italy) (1), habitats frequented by *Cochylimorpha scalerciana* sp. n.: Colle Macchie, Pedace (Cosenza), 1450 m a.s.l. (2); Sila, Vivaio Sbanditi (Cosenza), 1351 m a.s.l. (3); Sila, Montagna Grande (Cosenza), 1355 m a.s.l. (4).

Fig. II – *Cochylimorpha scalerciana* sp. n.: adult male (1); male genitalia (2); aedeagus (3); central part of transtilla (4).

A small piece of a leg was transferred to a lysis plate under ca 0.3 ml 100% alcohol. Tissue samples were submitted to the standard procedures of the Canadian Centre for DNA Barcoding (CCDB) for sequencing the mitochondrial 5' cytochrome oxidase gene, subunit 1 (COI), the standard marker for the identification of most animals. LepF1 and LepR1 were the primers used for PCR and sequencing (HAJIBABAEI *et al.*, 2006). Sequences were blasted against the complete sequence database of BOLD data systems (RATNASINGHAM AND HEBERT, 2007) in order to investigate the closest matches using the BOLD Identification Engine (http://www.boldsystems.org/index.php/IDS_OpenIdEngine). Sequences having no matches on BOLD were blasted against the complete sequence database of GenBank (HAJIBABAEI *et al.*, 2006; RATNASINGHAM AND HEBERT, 2007). Genetic distances between sequences were measured using minimum pairwise distance and Neighbour joining tree was built using Kimura 2-parameter distance model for COI-5P marker.

A target 658-bp fragment of COI was amplified only from LEP-SS-831, as follow:

AACATTATACTTTATTTTTGGAATTTGAGCAGG
AATAGTAGGAACTTCTTTAAGTTTACTAATCCGT
GCTGAATTGGGAAATCCTGGATCTCTTATTGGA
GATGATCAAATTTATAATACTATTGTTACAGCACAT
GCATTTATTATAATTTCTTTATAGTTATACCAAT
TATAATTGGAGGATTTGGAAATTGACTAGTACCTT
TAATATTAGGAGCGCCTGATATAGCTTTCCCCCG
TATAAATAATATAAGATTCTGGTTATTACCACCTTC
TATTATACTTCTAATCTCTAGAAGAATTGTA
GAAATGGAGCAGGAAGTGGATGAACGGTGTAC
CCCCCACTTTCATCTAATATTGCCCATAGTGGAA
GATCAGTAGACTTAGCAATCTTCTCTTTACATT
TAGCTGGAATTTTCATCTATTTTAGGAGCTG
TAAATTTTATCACCATTATTTAATATACGACC
TAATAATATAAGATTAGATCAAAATACCTCTTTTGG
TATGAGCTGTAGGAATTACAGCTCTATTATTATTAT

TATCTCTTCCAGTTTTAGCGGGAGCTATTACTATAT
AACAGATCGTAATTTAAATACCTCATTTTTTGACC
CTGCTGGAGGGGGAGATCCTATTTTATATCAA
CATTTATTT

From BOLD it was not possible observe similarities. According to database of GenBank closer species, with 7% of genetic distances, are *Cochylimorpha straminea* (Haworth, 1811) Identifiers: TLMF Lep 08445 [sampleid], Depository: inatura, Dornbirn Collected in: Austria, Vorarlberg; GenBank accession number KP253321.1 and *Cochylimorpha alternana* (Stephens, 1834), Identifiers: MM22625 [sampleid], Depository: University of Helsinki Collected in: Finland, Nylandia; GenBank accession number KX049789. Barcode of *C. tiraculana* is unknown.

COMMENTS

The new species *C. scalerciana* belongs to *straminea* group. As adult *C. scalerciana* resemble *C. tiraculana* (Bassi & Scaramozzino, 1989) from Western Alps. *C. scalerciana* differs clearly from *C. straminea* (Fig. IV) and *C. alternana* (Fig. V) both in the external morphology of wings and in the male genitalia (RAZOWSKI, 1970 and 2009).

The adult of *C. scalerciana* is closely related with *C. tiraculana* (Fig. III, 1-4); the latter is externally distinct by dense strigulation of forewing that are silvery cream suffused and densely strigulated with ochreous cream, in *C. scalerciana* wings are silvery whitish-cream suffused and densely strigulated with yellowish-cream; male genitalia differ from those of *C. tiraculana* mainly in shape of valvae and in aedeagus. In *tiraculana* valva is broad and convex caudally with sacculus simple (Fig. III, 2-4), in *scalerciana* valva is rather slender, convex caudally and well sclerotized above sacculus (Fig. II, 2-4). Aedeagus is similar to *C. sparsana* (Staudinger, 1879).

C. tiraculana type localities are high alpine meadows in

Fig. III – *Cochylimorpha tiraculana* (Bassi & Scaramozzino): adult male (1); male genitalia (2); aedeagus (3); central part of transtilla (4).

Fig. IV – *Cochylimorpha straminea* (Haworth, 1811): adult male (1); male genitalia (2).

Fig. V – *Cochylimorpha alternana* (Stephens, 1834): adults male; male genitalia (2).

the border massifs between Italy and France (Italian valleys of Susa and Viù and French Hautes Alpes), and it is also reported for Alps of Switzerland (AARVIK, 2013), while *C. scalerciana* is only present in the Sila mountains (Calabria, Italy) in the Southern Apennines.

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