

# A new species of the genus *Ceratoxanthis* Razowski, 1960 from the East Caucasus (Lepidoptera: Tortricidae)

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## Abstract

A new species, *Ceratoxanthis intermedia* Tsvetkov, sp. nov., is described from Dagestan (East Caucasus), based on a series of males. *C. intermedia* has no visible external differences from *C. externana* (Eversmann, 1844) and *C. rakosyella* Wieser & Huemer, 2000 and can be separated from these two species by details in the male genitalia structure. Illustrations of the male genitalia of the new species are provided as well as of four compared species: *C. externana*, *C. rakosyella*, *C. saratovica* Trematerra, 2010 and *C. giansalottii* Bassi, 2014.

**Keywords:** Lepidoptera, Tortricidae, *Ceratoxanthis*, new species, East Caucasus, Dagestan.

## Una nueva especie del género *Ceratoxanthis* Razowski, 1960, del Cáucaso Oriental (Lepidoptera: Tortricidae)

## Resumen

Se describe una nueva especie, *Ceratoxanthis intermedia* Tsvetkov, sp. nov., procedente de Daguestán (Cáucaso Oriental), basada en una serie de machos. *C. intermedia* no presenta diferencias externas visibles con respecto a *C. externana* (Eversmann, 1844) y *C. rakosyella* Wieser & Huemer, 2000 y puede distinguirse de estas dos especies por detalles en la estructura de la genitalia del macho. Se proporcionan ilustraciones de la genitalia del macho de la nueva especie, así como de las cuatro especies comparadas: *C. externana*, *C. rakosyella*, *C. saratovica* Trematerra, 2010 y *C. giansalottii* Bassi, 2014.

**Palabras clave:** Lepidoptera, Tortricidae, *Ceratoxanthis*, nueva especie, Cáucaso Oriental, Daguestán.

## Introduction

The genus *Ceratoxanthis* Razowski, 1960 includes seven species inhabiting the southern regions of the western part of the Palaearctic (Razowski, 2009; Trematerra, 2010; Bassi, 2014). The biology of the species of the genus has been unstudied: their preimaginal stages and host plants are unknown. Many species are known only by males, and only three species, *C. externana* (Eversmann, 1844), *C. argentomixtana* (Staudinger, 1871) and *C. giansalottii* Bassi, 2014, have females described (Bidzilya & Budashkin, 2005; Razowski, 2009; Bassi, 2014). Biotopes of *Ceratoxanthis* spp. are open grassy areas (Razowski, 2009).

Representatives of the genus have a bright yellow forewing, often with a characteristic brown pattern of an oblique line and a pair of small spots on the opposite sides of the line (Figures 1, 7). Similar colouration of the forewing is found in the genera *Agapeta* Hübner, [1825] and *Fulvoclysia* Obratzsov, 1943: diagnosis of the genus and species usually requires examination of the genitalia. To distinguish species based on the male genitalia, differences in the structure of the socii, the juxta, and, especially, the basal process of the sacculus are usually used. A key to the five species of the genus (Elsner & Jaroš, 2003) indicates interspecific differences in the length of the sacculus process relative to the length of the aedeagus, as well as differences in the details of the structure of this process.

The material for this article was collected by the author during expeditions to the Republic of Dagestan in spring and summer of 2022, 2023 and 2024. A new species of the genus *Ceratoxanthis* was discovered in two localities quite distant from each other. One locality is in the vicinity of the village Talgi and another is near Gubden. Almost all specimens were collected by a net in the evening time, with the exception of two specimens that were attracted by light near the village of Gubden.

The genitalia of three paratypes of the new species were dissected (including the specimen collected nearby of Talgi). After studying and photographing the structures, the preparations were preserved in syrup.

The photographs of genitalia structures were also obtained based on additional material on the genus *Ceratoxanthis* preserved in the author's collection (*C. externana* from Orenburg Province, *Ceratoxanthis saratovica* Trematerra, 2010 from Volgograd Province).

The descriptive terminology of genitalia structures generally follows Kuznetsov (1978). All type material of *Ceratoxanthis intermedia* is deposited in the collection of Zoological Institute of Russian Academy of Sciences, St Petersburg (ZIN).

***Ceratoxanthis intermedia* Tsvetkov, sp. nov.** (Figures 1-3)

<https://zoobank.org/7B8AD618-BB5F-41E3-97E0-DAC670AE3C7E>

Type material: Holotype ♂, Russia, Dagestan, 4 km SE vill[age]. Gubden, 560 m, 31-V-2024, leg. E. Tsvetkov. Paratypes 6 ♂: the same labels as for holotype, but 3 ♂, 12-VI-2023 and 2 ♂, 31-V-2024; Russia, Dagestan, 3 km W vill. Talgi, 600 m, 1 ♂, 15-VI-2022, leg. E. Tsvetkov. Type material is deposited in the collection of Zoological Institute of Russian Academy of Sciences, St Petersburg (ZIN).

Imago: Frons and vertex yellow, antennae covered with whitish scales. Labial palps yellow on the inside and above, golden brown on the outside, directed forward, slightly less than two eye diameters in length. Antennae not much more than half the length of forewing. Cilia white and short (nearly the diameter of flagellomere). Legs brown (hind legs noticeably lighter), tarsus bicoloured: brown with small yellowish spots at the ends of segments dorsally and lighter coloured (pale yellow) ventrally.

Wings (Figure 1): Forewing 8-9 mm, subtriangular with slightly convex costal margin and posterior margin convex in basal half; costal fold not expressed. Forewing lemon yellow with fine punctures (more noticeable in the apical half) formed by specks of shiny light-yellow scales. Brown pattern has a rufous tint and consists of an oblique narrow band and a pair of small spots, basal and subapical, separated by the band. Sometimes there is a noticeable widening of the band at the inner margin of the wing and narrowing in the middle part; outer edge of the band always with small protrusion at  $M_1$  base. Basal spot and band along some extent (from its middle to inner margin of the wing) covered with darker, purplish-brown scales. Costal reddish-brown streaks are sometimes visible in the apical part (1-2 small streaks) and in the basal part (usually one streak or variable pattern along costa). Fringe dark grey. Forewing brown on the underside, usually with 1-2 yellow spots at costal margin. Hindwing brownish, sometimes pale brown; fringe brownish with dark brown basal line along the edge of the wing. Underside pale brown, often whitish with traces of reticulated brown pattern.

Male genitalia (Figures 2-3): Socii relatively wide, triangular, ventral edge acute-angled. Ventrocaudal edge of valva rounded, cucullus of valva quite variable. Base of cucullus bears a well sclerotized short process covered with spiny setae. Process of sacculus is from 2/3 to 3/4 of valva, arcuate (almost evenly curved along its entire length), slightly thickened apically, directed dorsocaudally and reaches the edge of valva; apical part bears a cluster of microspines (acanthae) in the form of longitudinal stripe, which continues as a thinner stripe along the process towards its middle. Aedeagus small, approximately 1.5 times as short as process of sacculus; distal half thin, cylindrical, proximal part thickened; vesica armed with very small needle-shaped cornutus. Lateral processes of juxta relatively short, flat triangular and sharply pointed dorsally.

Diagnosis: The new species resembles *C. saratovica* Trematerra, 2010 in the structure of the genitalia, but differs well from the latter in the colouration of the forewing. In *C. intermedia*, the oblique brown band is solid, a pair of small brown spots on the sides of the band is present. The brown pattern of the forewing is greatly reduced in the compared species: the oblique band is absent or (more often) only a thin trace is noticeable as 1-2 brown specks. In male genitalia of *C. saratovica*, the process of the sacculus with the apical part bent downward (Figures 5-6). Males of *C. intermedia* are with evenly curved sacculus process that does not have an apical bend.

*C. argentomixtana* (Staudinger, 1871) has the same differences from *C. intermedia* in wing colouration and male genitalia as *C. saratovica*.

Species of the genus such as *C. externana* and *C. rakosyella* do not have external differences from the described species *C. intermedia*, and comparison of the genitalia is required for diagnosis.

Males of *C. externana* are with a shorter sacculus process reaching approximately the centre of the valva (Figures 8-9) (the process is about 1/2 of the valva), whereas in *C. intermedia* the process of the sacculus reaches the edge of the valva and it is from 2/3 to 3/4 of the valva.

Males of *C. rakosyella* are distinguished by a much longer process of the sacculus, noticeably protruding beyond the edge of the valva (Figures 11-12). In males of this species, the length of the process is not less than the valva, while in *C. intermedia* the process is from 2/3 to 3/4 of the valva.

The sacculus process is significantly shorter in *Ceratoxanthis giansalottii* Bassi, 2014 than in the new species (almost half as long as the valva), also apical part of the process is different (Figure 10).

Males of *C. iberica* Baixeras, 1992 have a more strongly curved process of the sacculus; in addition, in males of this species, ventral edge of the socii is rounded. In *C. intermedia*, ventral edge of the socii is acute-angled.

**Biology:** In two discovered populations of *C. intermedia*, the species occurs at altitudes of 500-600 meters above sea level. These habitats are bushy dry gaps with the participation of *Cotinus coggygria* Scop., *Spiraea crenata* L., *Pyrus salicifolia* Pall. Adults are active in the evening and at night. In the vicinity of the village Gubden, they were found in the lower reaches of the gap among shrub vegetation, as well as in small isolated areas of herbaceous vegetation.

**Etymology:** The species name is a Latin adjective, meaning “intermediate”: the sacculus process in male genitalia is of medium length compared to closely related species of the genus.

**Remarks:** For the Caucasus, there were not any reports on the occurrence of *Ceratoxanthis* spp., with the exception of *C. externana*. According to the authors, the range of the latter species includes the Southern Urals, the Caucasus, Transcaucasia, Türkiye, Kazakhstan and Turkmenistan (Kuznetsov, 1978; Razowski, 2009). However, it is worth noting that the occurrence of *C. externana* in the Caucasus is doubtful due to previously possible mixing this species with *C. intermedia*. There is no doubt about the presence of *C. externana* in the type locality of this species (Southern Urals), as well as in Middle and Lower Volga. So, *C. intermedia* is the only reliably known *Ceratoxanthis* species in the Caucasus region.

## Conflict of Interest

The author declares that he has no financial interest or personal relationship that could influence the work presented in this article.

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**Figures 1-12.** Imago and genitalia of *Ceratoxanthis* spp. **1.** *C. intermedia* Tsvetkov, sp. nov., holotype. **2-3.** Idem, male genitalia (paratypes). **4.** *C. saratovica*, male, Volgograd Prov., Lake Bulukhta, 25-V-2017. **5-6.** Idem, male genitalia. **7.** *C. externana*, male, Orenburg Prov., riv. Kinderlya, 26-VI-2011. **8-9.** Idem, male genitalia. **10.** Male genitalia of *C. giansalottii* after Bassi (2014). **11-12.** Male genitalia of *C. rakosyella*. **11.** after Zlatkov & Sivilov (2023). **12.** after Wieser & Huemer (1999).

