

TAXONOMIC UPDATE OF THE SPECIES OF *COPITARSIA* HAMPSON  
1906, (LEPIDOPTERA: NOCTUIDAE: CUCULLIINAE)

ACTUALIZACIÓN TAXONOMICA DE LAS ESPECIES DE *COPITARSIA*  
HAMPSON 1906, (LEPIDOPTERA: NOCTUIDAE: CUCULLIINAE)

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SUMMARY

The present work is a catalogue of the species of *Copitarsia* Hampson, including twenty-one species from North to South America. Two species group are separated taxonomically. They are the species group *turbata* and the species group *incommoda*. Also new combinations as well as synonyms for some species are proposed. The genitalia male morphological characters of *Copitarsia turbata* (Herrich-Schaeffer) y *Copitarsia incommoda* (Walker) are illustrated.

KEYWORDS: Lepidoptera, Noctuidae, Cuculliinae, catalogue, *Copitarsia* Hampson new combinations, new synonymous, host plants.

RESUMEN

En este trabajo se presentan las especies de *Copitarsia* Hampson, 1906, las que suman veintiuna especies descritas, distribuidas desde América del Norte a Sudamérica. Taxonómicamente se separan dos grupos de especies: uno de ellos es el grupo especie *turbata* y el otro es el grupo especie *incommoda*. También se proponen nuevas combinaciones y sinónimos para algunas especies. Se ilustran los caracteres taxonómicos diferenciales de los machos de *Copitarsia turbata* (Herrich-Schaeffer) y *Copitarsia incommoda* (Walker).

PALABRAS CLAVES: Lepidoptera, Noctuidae, Cuculliinae, catálogo, *Copitarsia* Hampson, nuevas combinaciones, nuevos sinónimos, plantas hospederas.

INTRODUCTION

Species of *Copitarsia* Hampson are distributed from Mexico to the Patagonia. They are usually associated to crop of agriculture importance, specially in countries such as Colombia - where they infest flowers (D. Forero, *com. pers.* 2002)- or Mexico - where they infest cole crops.

In the Lepidopterorum Catalogue of Poole (1989) *Copitarsia* Hampson and *Cotarsina* Koehler were treated separately. Later on, Castillo & Angulo (1991) indicated the synonymy of these two genera, validating *Copitarsia* Hampson. Poole (1989) also renominated *C. consueta* Walker as *C. incommoda* (Walker). In Chile *C. turbata* (H-S) was errone-

ously identified as *C. consueta* (Walker) (Angulo & Weigert 1975 a y b; Artigas 1972; Angulo *et al.* 1990). *C. consueta* is a valid species presently named *C. incommoda* (Walker). The recognition of the species through their immature stages is confusing because of color variation of larvae. Hence the need to use morphological characters of larvae. Adults are best identified using differences in their genitalia structures.

In 1991 Castillo & Angulo reviewed the genus based on eight species only. Angulo & Olivares (1999) added new species. The present work compiles all available information and re-labels known species.

#### MATERIALS AND METHODS

After the revision of the types of genus *Copitarsia* of the Koehler Collection located at the Foundation and Miguel Lillo Institute (FML), the Scientific Collections from the Concepción University (UCCC), review of literature and biological material proceeding from this last institution, the revision of external characters and of the genital armature of the specimens was performed through the Angulo & Weigert (1977) technique.

#### RESULTS

After a critical review of the species, the definitive listing of the species is the following, considering the location and date of collection.

#### *COPITARSIA* HAMPSON 1906

*Copitarsia* Hampson 1906, p. 184

*Cotarsina* Koehler 1951, p. 166

1. *C. anatumca* Angulo & Olivares 1999. Chile: Talca, La Mina (February)
2. *C. anguloi* Castillo 1991. Chile: Talca, La Mina (November and December), Chiguayante (October), Angol (September).
3. *C. basilinea* Koehler 1958. Chile: Cautín, Termas de Río Blanco (April), Argentina: Mendoza (February).
4. *C. belenensis* (Koehler 1973) **n. comb.** Argentina: Catamarca, Cuesta de Belén (March).  
*C. belensis* (Koehler 1973) (*lapsus calamorum*)
5. *C. clavata* Koehler, 1955. Argentina: Chubut, Comodoro Rivadavia (December). Chile: Talca: Pehuenche and La Mina (January and February), Punta Arenas, Tres Puentes (February and December).
6. *C. fleissiana* (Koehler 1958) **n. comb.** Argentina: Neuquén, Limay (November)
7. *C. gentiliana* (Koehler 1961) **n. comb.** Argentina: Neuquén, Tipiliuke, Loncopue)
8. *C. gracilis* (Koehler 1951) **n. comb.** Argentina: Río Negro.  
*C. gracilisoides* (Poole 1989) Argentina: Neuquén, Paso Flores, **n. sin.**
9. *C. humilis* (Blanchard 1854). Chile: Santiago, Coquimbo.
10. *C. incommoda* Walker, 1865. México: Mexico City, Durango, Patzcuaro, Jalapa, Costa Rica: Volcán Irazu; Guatemala; Colombia: Bogotá; Perú; Argentina: Mendoza, Neuquén, Esquel, Chubut, Santiago del Estero, Buenos Aires, Comodoro Rivadavia.  
*C. consueta* (Walker 1857) (Junior primary homonymous of *Agrotis consueta* Walker 1857).  
*C. peruviana* (Walker 1865).  
*C. margaritella* (Dognin 1916).
11. *C. maxima* (Koehler 1961) **n. comb.** Argentina: Neuquén, San Martín de Los Andes (December), San Luis.
12. *C. mimica* Angulo & Olivares 1999. Argentina: La Rioja, Punta Balasto (January).
13. *C. murina* Angulo, Olivares & Badilla 2001. Chile: Talca, La Mina (January, October and December).
14. *C. naenoides* (Butler 1882). Chile: Concepción,

Camino a Bulnes (January, February, October, November, December). Argentina: Tucumán.  
*Euxoa editae* Angulo & Jana-Sáenz, 1982. **n. sin.**

15. *C. paraturbata* Castillo & Angulo 1991. Chile: Iquique, Mamiña (October)

16. *C. patagonica* Hampson 1906. Argentina: La Rioja, Punta Balasto, Chubut (January), Mendoza, San Juan. Chile: Cautín, Termas de Río Blanco (February).

17. *C. purilinea* (Mabille 1885). Patagonia, Santa Cruz.

18. *C. roseofulva* (Koehler 1952) **n. comb.** Bolivia: Oruro

19. *C. sulfurea* (Koehler 1973) **n. comb.** Colombia: Santa Fe de Bogotá. Argentina: Mendoza, Chubut, Comodoro, Neuquén (December).

20. *C. turbata* (H-S 1855). Venezuela. Uruguay. Perú (Valle del Ica). Colombia, Costa Rica, Ecuador, Guatemala. Mexico. Argentina: Rio Negro, Neuquén, Potrerillos, Mendoza, Jacanto, Córdoba, La Rioja; Chile: Concepción (January, July, December), Valdivia (January, March and August), Coihueco (January), Talca y San Clemente (September), Santiago (October and November).

21. *C. vivax* Koehler 1951. **n. comb.** Comodoro Rivadavia, Chubut (December).

#### INTERSPECIFIC RELATIONS IN *COPITARSIA*

The 21 known species of *Copitarsia* Hampson can be found in two group of species, in accordance to the following characteristics:

**Group of species *turbata*:** The uncus vertex is presented dorsally and in a plain manner, without overlapped or noticeable structures; the valve vertex does not carry any corona, only 5 or 6 strong strings; spatulate digitus; the vesical base holds two indented lateral plaques, in addition to the normal thick splinters; here there are 3 species:

*C. incommoda* Walker  
*C. paraturbata* Castillo & Angulo  
*C. turbata* (H-S)

**Group of species *naenoides*:** The uncus vertex holds dorsally two longitudinal plaques with recurved indentations; the valve vertex holds a complete corona and a strong digitus somewhat acute (non spatulate); the vesical base does not have indented plaques, but has normal thick splinters. Here are found the other 18 species as follows:

*C. anatumca* Angulo & Olivares  
*C. anguloi* Castillo  
*C. basilinea* Koehler  
*C. belenensis* (Koehler)  
*C. fleissiana* (Koehler)  
*C. clavata* Koehler  
*C. gentiliana* (Koehler)  
*C. gracilis* (Koehler)  
*C. humilis* (Blanchard)  
*C. maxima* (Koehler)  
*C. mimica* Angulo & Olivares  
*C. murina* Angulo, Olivares & Badilla  
*C. naenoides* (Butler)  
*C. patagonica* Hampson  
*C. purilinea* (Mabille)  
*C. roseofulva* (Koehler) (with spatulate digitus)  
*C. sulfurea* (Koehler)  
*C. vivax* (Koehler)

#### TAXONOMIC CONSIDERATIONS

The *Copitarsia* genus is defined by the shape of the elongated valves, 5 or 6 times longer than its medial width, attenuated in the vertex, corona presence, with a well developed ampulla, where the valve stands out in some species, low developed clasper and the presence of digitus that varies in shape for each specie, unique uncus with presence of large or poorly developed splinters, acute saccus with sharp end, digitiform juxta, aedeagus with a corona of splinters surrounding the base of the aedeagus cover, the female genitalia is characterized by the presence of corpus and sub globose bursae cervix and the presence of signa in the corpus bursae formed in vertical lines.

*Copitarsia incommoda* Walker v/s  
*Copitarsia turbata* (Herrich-Shaeffer)

These two species that are frequently mixed up because they share some agriculture crops as host and they look alike in their external appearance. Angulo *et al.* (1990) makes reference to the external morphological differences present in both species.

One of the most important is the, *C. incommoda* Walker (= *Copitarsia consueta*

(Walker)) which makes that the identification for each one of them be very exhaustive.

Without any doubt the characters that allows a reliable and safe identification are the male genitalia characters.

The knowledge of the immature stages within the genus is reduced to only two species: *Copitarsia turbata* and *Copitarsia incommoda*. Work has been done recently with *C. clavata* and the description of its immature stages (Zúniga *et al.* (in litt.)).

TABLE I. Comparative table of the species *C. incomoda* y *C. turbata*.

TABLA I. Tabla comparativa de las especies *C. incomoda* y *C. turbata*.

	saccus	apex of ampulla	apex of d gitus	Suboval plate of cornuti
<i>Copitarsia turbata</i>	short and rounded	acute (fig. 12)	truncated and straight (fig.12)	6 a 8 teeth (fig. 6, 9)
<i>Copitarsia incommoda</i>	length and rounded (fig.1)	round (fig. 11)	truncated and sinuose (fig.11)	5 or less (fig. 4, 7)

The synonymy between the genus *Copitarsia* Hampson and *Cotarsina* Koehler was emphasized by (Castillo & Angulo 1991), because they do not present any characters that endorse the genus separation.

HOST PLANTS

In addition, the available information concerning the feeding location of *Copitarsia* Hampson larvae is very little, leading us to know only 3 species:

*Copitarsia turbata*: raps, grape, alfalfa, chili pepper, artichoke, onion, raspberry, strawberry, chickpea, jojoba, asparagus, corn, apple, sunflower, potato, pistachio, sugar beet, cabbage, tobacco, wheat, garlic, alfalfa, ballica, onion, carnation, feijoa, kiwi (Angulo & Weigert 1975a); (Artigas &

Angulo 1973); (Prado 1991); (Artigas 1994) and (Klein-Kock & Watterhouse 2001).

*Copitarsia naenoides*: ballica, beet root, linen, potato, sugar beet, quinoa, alfalfa, onion, asparagus (*op.cit.*)

*Copitarsia incommoda*: asparagus, cauliflower, broccoli, coriander, cut flowers (USDA, 2001).

*Copitarsia gracilis* (Koehler 1961)

In 1989 Poole in his list of species of the genus *Copitarsia* mentions that *C. gracilis* Koehler, 1979 is concerned for *C. gracilis* (Koehler 1961), because in both descriptions he writes n. sp., but in both cases, Koehler used the same specimens in each description and the same genitalia preparations (No. 1005 and 1141). The author therefore, describes twice the same species, remaining because of the

priority principle the one written in 1961 as the valid specie.

NOMINA MUSEOLOGICA

While reviewing the Koehler type material at the Foundation and Lillo Institute of the Tucuman National University, Argentina, it was found some anecdotic aspect: that some species of *Copitarsia* were not described and corresponded to museologic listing.

1. *Copitarsia giacomellii* Koehler. Argentina. La

Rioja. Owns a prepared male genitalia No. 1208.

2. *Copitarsia orbiculata* Koehler. Argentina: Neuquén Province (Anhelo) (October). Owns a prepared male genitalia No. 1130.

3. *C. sanjuanina* Koehler. n. comb. Argentina: Mendoza province. Without genitalia preparation.

4. *C. pallescens* Koehler. n. comb. Argentina. Comodoro Rivadavia (February). Without genitalia preparation.

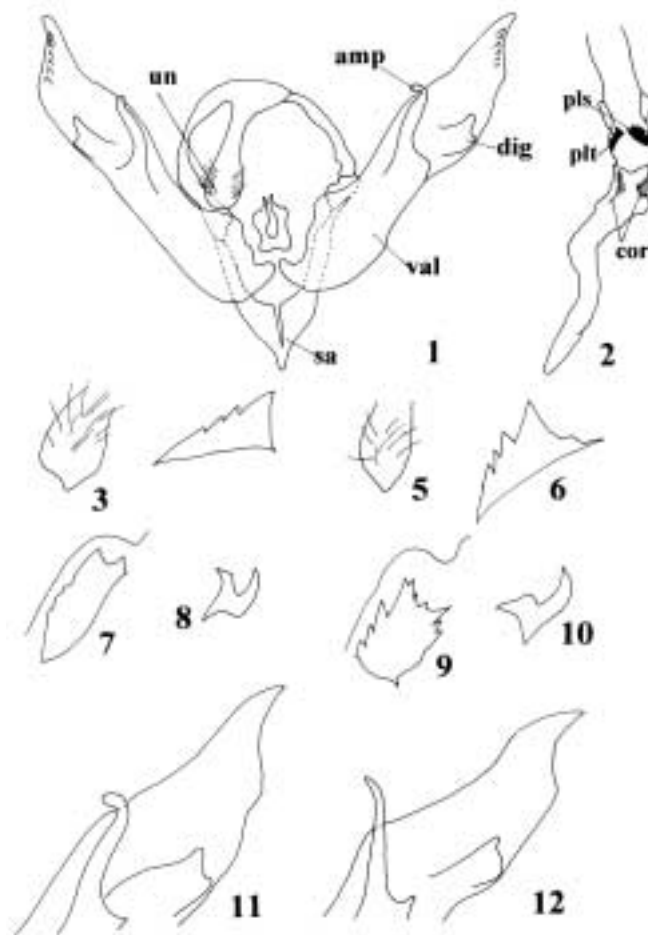


FIGURE 1 (1-12): *C. incommoda* (Walker): 1. male valvae and uncus; 2. male vesica insuflada; 3. apex of uncus; 4. triangular plate of cornuti; 7. suboval plate of cornuti; 8. Arm of yuxta; 11. clasper complex. *C. turbata* (Herrich-Schaeffer): 5. apex of uncus; 6. triangular plate of cornuti; 9. suboval plate of cornuti; 10. arm of yuxta; 12. clasper complex.

FIGURA 1 (1-12): *C. incommoda* (Walker): 1. valva y uncus del macho; 2. vésica macho insuflada; 3. ápice del uncus; 4. Placa triangular del cornuti; 7. Placa suboval del cornuti; 8. yuxta; 11. Complejo del clasper. *C. turbata* (Herrich-Schaeffer): 5. ápice del uncus; 6. placa triangular del cornuti; 9. Placa suboval del cornuti; 10. yuxta; 12. Complejo del clasper.

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