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*Zaretis itys* (Cramer, [1777])

foto: U. Drechsel

# Notes on the early stages of *Ormetica codasi* (Joergensen, 1935) (Lepidoptera: Erebidae: Arctiinae)

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**Abstract:** The immature stages of *Ormetica codasi* (Joergensen, 1935) are described. In the wild a female was found in the department of Paraguairí, which laid some ova. In the laboratory the larvae were fed with young leaves of *Inga laurina* (Sw.) Wild. (Fabaceae). One generation (oviposition to imago) lasted 30 days. Ova, larval instars, cocoon, pupa and adults are illustrated.

**Resumen:** Se describen los estadios inmaduros de *Ormetica codasi* (Joergensen, 1935). En la naturaleza una hembra fue encontrada en el departamento de Paraguairí. En el laboratorio se alimentaron las larvas con hojas jóvenes de *laurina* (Sw.) Wild. (Fabaceae). Una generación (oviposición a imago) duró 30 días. Huevos, estadios larvales, capullo, pupa y adultos se ilustran.

**Zusammenfassung:** Die Entwicklungsstadien von *Ormetica codasi* (Joergensen, 1935) werden beschrieben. In freier Wildbahn wurde ein Weibchen im paraguayischen Departament von Paraguairí gefunden. Im Labor wurden die Larven mit jungen Blättern von *Inga laurina* (Sw.) Wild. (Fabaceae) gefüttert. Eine Generation (Eiablage bis Imago) dauerte 30 Tage. Eier, Larvenstadien, Kokon, Puppe und Imagos werden abgebildet.

**Key words:** Paraguay, Erebidae, Arctiinae, *Ormetica*, early stages.

## Introduction

Of the genus *Ormetica* Clemens, 1861 approximately 46 species and two subspecies have been described, almost exclusively from the Neotropics (Vincent & Laguerre, 2014). Only a few species expand their area of distribution into the southern parts of North America (Savela, 2015). From Paraguay four species are known so far: *O. chrysomelas* (Walker, 1856) *O. codasi* (Joergensen, 1935), *O. melea* (Druce, 1900) and *O. sypilus* (Cramer, [1777]). Nothing has been published on larval stages or larval food plants.

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### Material and methods

The starting material for the breeding was a female (Figs. 1 and 2) which was found in Mbatoví in the department of Paraguari. She attached her ova in small groups to the underside of the leaves of *Inga uraguensis* Hook & Arn., 1833. Two of these groups, one with nine (Fig. 3) and the other with eighteen eggs were used for the breeding attempt. Larvae were fed with *Inga laurina*, as *I. uraguensis* was not available nearby the laboratory. Measurements of ova were taken with a binocular microscope with micrometric eyepiece.

### *Ormetica codasi* (Joergensen, 1935)

The description of Joergensen (1935) as *Automolis codasi* was based on specimens collected in Villarrica in the Paraguayan department of Guairá. Later on the species was transferred to the genus *Ormetica* by Watson (1975) still known from Paraguay only. In recent years, the species could be detected by the author in additional departments like Cordillera, Paraguari, Caazapá, Caaguazú, Alto Paraná and Kanindeyú. One specimen was collected in Foz do Iguacu, Brazil, June 2001 (S. Silveira Neto, in litt. 2015), deposited in the Museu de Entomologia, University of Sao Paulo, Brazil.



Figs. 1-2: *Ormetica codasi* female; 1) dorsal view; 2) ventral view

**Ova:** The translucent yellow ova are deposited individually or in small groups, have a diameter of 0.47 mm and a height of 0.25 mm, are semispherical and attached with the flat side to the underside of the leaves (fig. 3). The contents of the egg is yellow, the shell translucent, so no color change before hatching can be seen as the larva is yellow too.

**First instar:** The first instar larvae hatched after four days since oviposition. They are yellowish translucent, greenish yellow after their first feeding, because now shines through the intestinal contents. The head capsule is translucent, only the sclerotized maroon mouthparts and the ocelli

can be seen as black dots. Each segment has a transverse row of four warts each of which carries up to three colorless bristles, such as the length of the body diameter. Only the bristles on the thoracic and anal segments are about twice the length. The fecal pellet in the proctodaeum is visible as dark green spot (Fig. 4). Duration of the first instar three days.



Figs. 3-6: *Ormetica codasi*; 3) ova; 4) first instar; 5) second instar; 6) third instar

**Second instar:** Head, body and legs dark yellow. Each segment has a transverse row of six warts each of which carries six to ten colorless bristles, such as the length of the body diameter. The bristles on the thoracic and anal segments are about twice the length. The warts on the thoracic segments and the last two abdominal segments are raised bump-shaped. All remaining abdominal segments bear two subdorsal rows of red-brown spots with a white core (Fig. 5). Duration of the second instar three days.

**Third instar:** Head, body and legs dark yellowish orange. Each segment has a transverse row of six warts each of which carries a brush of brownish bristles, such as the length of the body diameter. The bristles on the thoracic and anal segments are about twice the length. The bump of the third thoracic segment bears a transverse yellow mark, the dorsal wart of the following segment a dark brown brush of bristles as well as the penultimate abdominal segment. The rows of red-brown spots with white core as before (Fig. 6). Duration of the third instar four days.



Figs. 7-10: *Ormetica codasj*; 7) fourth instar ventral, freshly molted; 8) fourth instar laterodorsal; 9) fifth instar; 10) cocoon

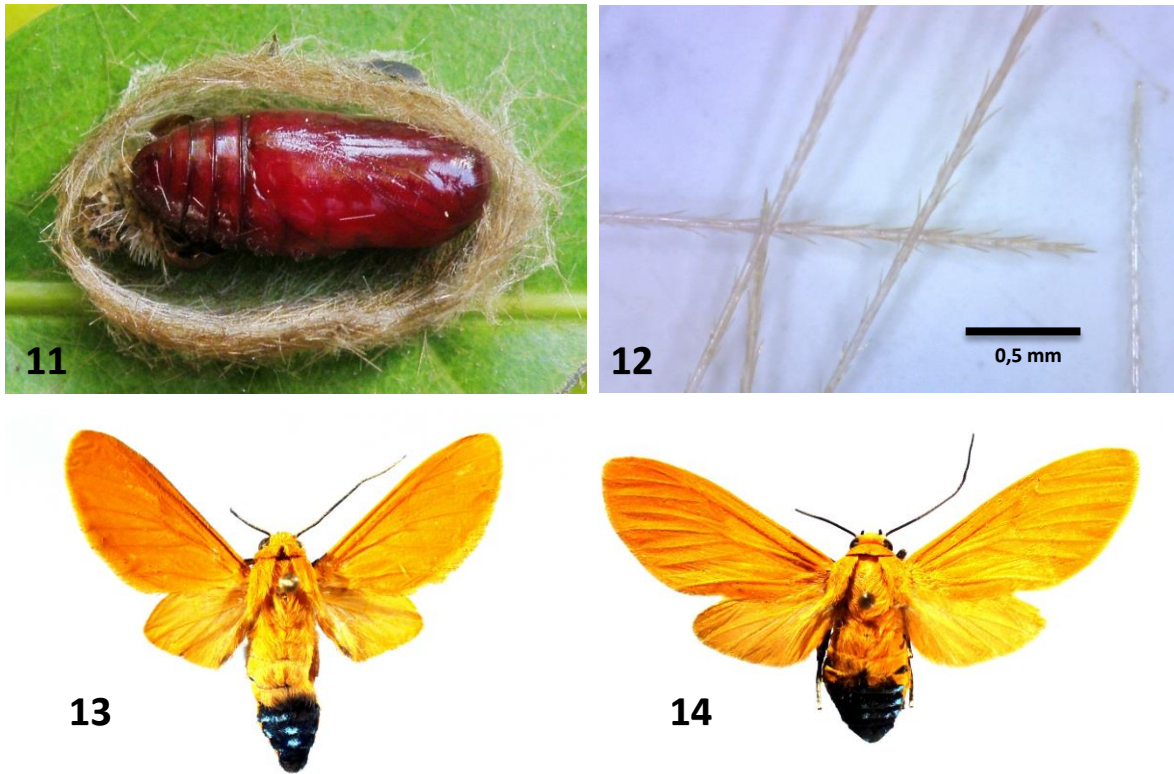
**Fourth instar:** Color of head, body and legs even darker reddish brown. The longer bristles on the thoracic segments and a central tuft on the penultimate abdominal segment white. The transverse yellow mark on the third thoracic segment marked caudal with a black border. The subdorsal rows of spots are now black without the white core (Figs. 7, 8). Duration of the fourth instar three days.

**Fifth instar:** Color as before, the warts are bearing now even denser bristles, so that the subdorsal rows of spots are hardly seen (Fig. 9). Duration of the fifth instar three days, the fourth day larvae begin spinning the cocoons.

**Cocoon:** The cocoon is made of grey silk, the reddish brown bristles of the caterpillar are woven into the outer layer (Fig. 10).

**Pupa:** The basic color of the pupa is maroon, abdominal spiracles and the dividing lines between the abdominal segments are dark brown (Fig. 11).

**Imago:** The first moths, all females, appeared after nine days of pupal period, the first male two days later. Just before sunset, the moths emerge and begin flight activity in the dark. Spread moths have a wingspan of 31 – 33 mm the male and 36 – 40 mm the female (Figs. 13, 14).



Figs 11-14: *O. codasi*; 11) pupa; 12) bristles from the cocoon's outer layer; 13) male; 14) female

### Discussion

The larvae of the first and second instar show a “bungee jumping” behavior (Silva et al. 2014) when they feel threatened. The caterpillar jumps off its leaf where it has left attached a thread of silk and is suspended in the air from where it hauls itself back again. Placed on a flat surface, the caterpillar repeats in rapid succession several of these jumps, reaching with every jump up to 4 cm. Older caterpillars drop but without a silk thread. They possess a pronounced grip effect, each object which is touched while falling is quickly gripped with the legs (Fig. 7). The probability is low that the tree feeding caterpillars fall to the ground without touching any leaf or twig.

The caterpillars’ “hairs” are barbed bristles and have an urticating effect (Fig. 12). When woven into the outer layer of the cocoon they are dry and easily broken and may form a certain protection against predation.

The total duration of development from egg to moth is 30 days only. Observations of adult moths in the months of January, February, May, July, September and November and the short development time suggest that *O. codasi* is polyvoltine and have several broods throughout the year.

### Acknowledgements

I wish to express my most sincere gratitude to my friends Hugo Bogado, Willi Knapps and Santiago Vourliotis for logistic support and their help in field work during our stays in Estancia Dimas and in Mbatoví. Sinval Silveira Neto is thanked for the kind information about the specimen from Brazil.

### References

- DRECHSEL, U., 2015. <http://www.pybio.org/5852/arctiidae-2/> (retrieved March 15 2015).
- JOERGENSEN P. 1935. Lepidópteros nuevos o raros de la Argentina y del Paraguay. *Anales del Museo Argentino de Ciencias Naturales* 38: 85–130.
- SAVELA, M. 2015. <http://ftp.fi/index/Science/bio/life/insecta/lepidoptera/ditrysia/noctuoidea/arctiidae/arctiinae/ormetica/> (retrieved March 15 2015).
- SILVA, N.A., DUARTE, M., ARAUJO, E.B. & MORAIS, H.C. 2014. Larval biology of anthophagous Eumaeini (Lepidoptera: Lycaenidae, Theclinae) in the cerrado of central Brazil. *Journal of Insect Science* 14(1).
- VINCENT, B. & LAGUERRE, M. 2014. Catalogue of the Neotropical Arctiini Leach, [1815] (except Ctenuchina Kirby, 1837 and Euchromiina Butler, 1876) (Insecta, Lepidoptera, Erebidae, Arctiinae). *Zoosystema* 36 (2): 137-533.
- WATSON, A. 1975. A Reclassification of the Arctiidae and Ctenuchidae formerly placed in the Thyretid Genus *Automolis* Hübner (Lepidoptera). *Bulletin of the British Museum (Natural History)*. Supplement 25: 1-104.
- WATSON, A. & GOODGER, D.T. 1986. Catalogue of the Neotropical Tiger-moths. Department of Entomology, British Museum (Natural History). *Occasional Papers on Systematics Entomology* 1: 1-71.

**FRONT COVER PHOTO:** *Zaretis itys* (Cramer, [1777]) (Nymphalidae), last instar larva, Paraguay, Dep. Paraguari, Yaguarón, 12. XII. 2014

