



## Biology and external morphology of immature stages of *Memphis appias* (Hübner) (Lepidoptera: Nymphalidae: Charaxinae)

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### Abstract

The biology and the external morphology of *Memphis appias* (Hübner) immature stages collected on *Croton floribundus* (Euphorbiaceae) in various localities in the state of Paraná, Brazil, are described. Morphological descriptions and illustrations are given, based upon observations through stereoscopic and optic microscopes attached to camera lucida. Results are compared and discussed with immature stages of other species of *Fountainea* and *Memphis* known to date.

**Key words:** Anaeini, Chaetotaxy, *Croton*, *Fountainea*

### Resumo

Descreve-se a biologia e a morfologia externa dos estágios imaturos de *Memphis appias* (Hübner) coletados em *Croton floribundus* (Euphorbiaceae) em diversas localidades do estado do Paraná, Brasil. Características morfológicas são descritas e ilustradas, como resultado de observações em microscópios estereoscópico e ótico acoplados a câmara clara. Resultados são comparados e discutidos com estágios imaturos de outras espécies de *Fountainea* e *Memphis* conhecidos.

**Palavras-chave:** Anaeini, Quetotaxia, *Croton*, *Fountainea*

### Introduction

*Memphis* Hübner is a genus of charaxine nymphalid currently considered to include 61 species and 112 subspecies (Lamas 2004). The genus is restricted to the Neotropics, ranging from Mexico south to northern Argentina and occurring from sea level to the elevated altitudes of the Andean region, where are the highest diversity of species can be found (Comstock 1961). The most complete taxonomic treatment for the genus was provided by Comstock (1961). He proposed *Memphis* as a subgenus of *Anaea* Hübner and, on the basis of adult morphological data, recognized eight major species groups, each one with its own subdivisions. Rydon (1971) re-elevated *Memphis* and *Cymatogramma* Doubleday to generic levels, including in the latter the 'verticordia', 'halice', and 'arginussa' species groups; and erected *Fountainea* Rydon, to include the 'nessus', 'ryphea', and 'glycerium' species groups. Salazar & Constantino (2001) accepted Rydon's (1971) taxonomic arrangement, adding the 'appias' species group to *Cymatogramma* and erecting *Rydonia* Salazar & Constantino and *Annagrapha* Salazar & Constantino for the 'pasibula' and 'aureola' species groups, respectively. Lamas (2004), however, recognized only *Fountainea* and *Memphis*, the former following Rydon's (1971) arrangement with the addition of the 'halice' species group, and retaining the remaining groups delineated by Comstock (1961) within *Memphis*.

Most *Memphis* larvae are reported to feed on various species of *Croton* (Beccaloni *et al.* 2008) (Euphorbiaceae), but a few species or species groups feed on species of *Hernandia* (Janzen & Hallwachs