

## External Morphological Study Of *Crambidia Pallida* Packard, 1864 Arctiidae – Lepidoptera - Insect From Baghdad, Iraq

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### ABSTRACT:

*This study was from May 2023 to March 2024 from many localities of this bio-diverse country. This study found one species of insect, **Crambidia pallida** Packard 1864, belonging to the family Arctiidae of the order Lepidoptera and its an insect Arthropoda in Baghdad, Iraq. The specimens were identified based on morphological characteristics, especially reproductive organs and geographical distribution. The larvae of some species of this family are hairy, and feed on different types of plants, which makes them of great economic importance. Specimens were collected from mulberry trees and clover plants by air netting with the help of fluorescent lights at night and killed by placing them in plastic bottles containing ethyl acetate 70%. The collected specimens were identified and compared with identification keys and a taxonomic note was given to the newly recorded species. Its were classified it morphologically by focusing on some of the phenotypic traits, and photographing the specimens using a mobile camera.*

**Key words:** Arctiidae, Lepidoptera, Insect, Arthropoda, pallida, Crambidia.

### INTRODUCTION:

Lepidoptera is an order of winged insects which includes butterflies and moths. About 180,000 species of the Lepidoptera have been described, representing 10% of the total described species of living organisms, making it the second largest insect order (behind Coleoptera) with 126 families and 46 super families, and one of the most widespread and widely recognizable insect orders in the world (Orhant, 1986; Lewis, 2005). Lepidopteran species are characterized by more than three derived features; the most apparent is the presence of scales that cover the bodies, large triangular wings, and a proboscis for siphoning nectars (Lafontaine, 2013; Jasim, 2017). Most Lepidoptera are phytophagous, plant eating in the larval stage, although a few specialize in fungus, debris and fewer still are predatory. Due to their plant-eating tendencies, several species are considered pests of crops and ornamental plants and forest trees (Dowdy, 2019; Singh, 2011).

Arctiidae is a major family of order Lepidoptera with estimated number of 11,000 species from the Globe (Heppner, 1991). This family includes the groups commonly known as tiger moths (or tigers) (Dubatolov, 2010). Tiger moths usually have bright colours, footmen (which are usually much drabber), lichen moths and wasp moths (Kirti & Gill 2010). Many species have 'hairy' caterpillars which are popularly known as woolly bears or woolly worms. This family play a large and diverse role in it's environment, including many species in Iraq (Saber, 2016). The Arctiidae family is

of great economic importance as some of its larvae are hairy (Cock, 1982). It have a massive economic impact with wide range and cosmopolitan distribution (Saber, 2023). Besides this, many of the other Arctiidae species are also known to be serious pests of agricultural crops grasses and forest trees (Sabr, 2017). The present study deals with one species *Crambidia pallida* of family Arctiidae from Iraq.

**MATERIAL AND METHODS:**

Gathered (57) specimens, (31) of them female and (26) of them male, from various Areas of Baghdad between April 2023 and March 2024 (Plate -1). The specimens were dispersed among the several research months. The months of April, May 20023 and March 2024 yielded the greatest number of specimens, while the months of November and December 2023 yielded the fewest specimens (Table - 2).

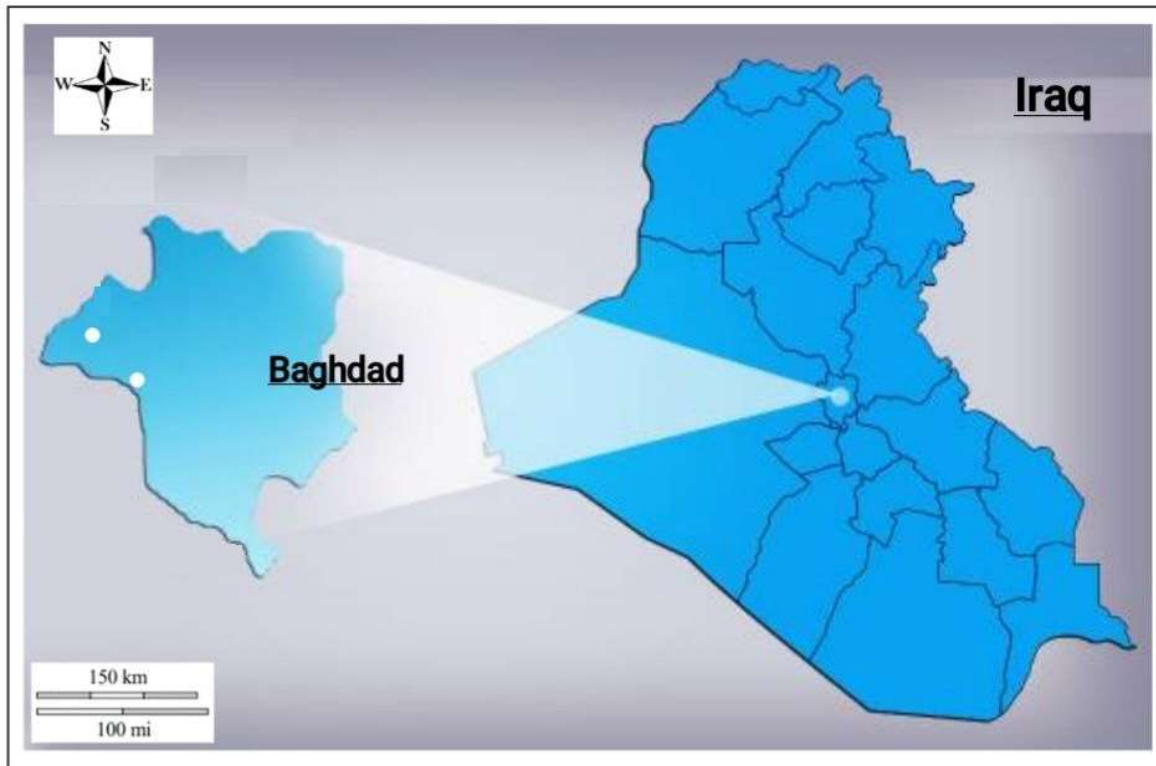
Specimens were collections from several locations within this biodiverse country serve as the foundation for the current observations (ALJAF, 2020; Sabr, 2017). The ethyl acetate fumes in the killing bottles were used to kill the Arctiidae moths, which were only gathered throughout the night with the assistance of fluorescent lights (Dubatolov, 2005; Aljoboory, 2022). With the aid of pertinent literature, the identification was completed (Salman, 2018; Sabr, 2018; Aljaf, 2019). The collected Specimens were further checked for authenticity with identifying keys from many sources (Singh, 2012; Hameed, 2013). This study report examines the material and provides a taxonomic note for the newly documented Specimens of this animal. Using a dissecting and compound microscope, the specimens were analyzed, identified and photographing it using a mobile phone camera (Table - 1).

**Table (1) : Materials and equipment:**

No.	Materials, equipment	Manufacturer	Origin
1	Dissecting microscope	Olympus	Japan
2	Compound microscope	Optica	Italy
3	Mobile Galaxy F62	Samsung	China
4	Ethyl Alcohol 70%	Iraq	Iraq
5	plastic bottles	Iraq	Iraq
6	Net	Iraq	Iraq
7	fluorescent lamp	China	China

**Table (2) : Number of specimen and their species according to collection months.**

Months	<i>C. pallida</i> ♂	<i>C. pallida</i> ♀	Total
April 2023	5	7	12
May 2023	5	6	11
June 2023	3	2	5
September 2023	2	3	5
October 2023	3	3	6
November 2023	2	1	3
December 2023	1	2	3
March 2024	5	7	12
Total	26	31	57



## RESULTES AND DISCUSSION :

### TAXONOMY:

Kingdom: Animalia Linnaeus, 1758  
Phylum: Arthropoda Gravenhorst, 1843  
Class: Insecta Linnaeus, 1758  
Order: Lepidoptera Linnaeus, 1758  
Superfamily: Noctuidae Latreille, 1809  
Family: Arctiidae Leach, 1815  
Subfamily: Lithosiinae Billberg, 1820  
Genus: *Crambidia* Packard, 1864  
Species: *C. pallida* Packard, 1864

### DESCRIPTION:

The Figures (1 to 7) described and Diagnosis the species *Crambidia pallida*, Packard, 1864. Its distinguished by the Prothorax, Tegulae, and white Patagia, the species *C. pallida* can vary in color from light to buttery yellow (Figs. 1,2).

Nevertheless, numerous Specimens of *C. Pallida* originating from different regions of Baghdad exhibit an indistinguishable visual appearance in terms of color only, dissecting the genitalia is required in order to distinguish them from those of another species. The tarsus has several spines and two claws (Figs. 3). There are thread-like antennae (Figs. 4). The genitalia of *C. pallida* are approximately small (Figs. 5,6,7). The male genitalia possess transverse characteristics (Figs. 5, 6). The tegumen has sclerotised struts located anteriorly, which are joined in the middle by a longitudinal strut. The dorsal strut extends to the base of the uncus. The sacculus is comparatively short and less sturdy.

However, it has several little cone-shaped projections that have approximately equal lengths. The transtilla exhibits paired medial processes with pointed projections at the middorsal junction. The projections of *C. pallida* exhibit varying lengths, as depicted in (fig. 5). The length of the left one is 20% greater than the length of the right one. View from the underside. The denticles of *C. Pallida* (fig. 6) are located on the rounded end portion. The number of vesicae in the aedeagus is greater. Female individuals can be readily identified. The genitalia of *C. pallida* (fig. 7) the sides of the lamella antevaginalis widen horizontally.

The Male (Fig. 1) The head exhibits a delicate hue ranging from pale yellow to butter yellow, and the palpi and antennae display a similar pale yellow color. The thorax's dorsum of the prothorax is a pale to butter yellow color, with a gentle appearance. The color of the head is lighter than the rest of the body; the tegulae and patagia are also pale in color. To spread butter evenly in a yellow color towards the front, with a consistent shade. The dorsum of the prothorax is lighter towards the posterior end. The mesothorax is pale cream in color on the upper side and cream colored from the spiral line to the Coxae on the lower side. The metathorax is bright cream in color on the upper side. On the underside, it gradually changes to a cream color. The Prothoracic Coxae and legs typically have a brown coloration. The anterior part is brown, while the mesothoracic coxae and legs are cream-colored.

The metathoracic coxae and legs are also cream-colored. The length of the forewing is between 12 and 15 millimeters, with a sample size of 26 and a mean value of 12.9 millimeters. The forewing has a dark basal line along the costa, which gradually transitions to a yellow or white color towards the distal end. The upper surface of both the front and hind wings is completely white. The ventral side of the forewing is a light yellow color, as is the ventral side of the hindwing anterior to the M1 vein. Subsequently, there is a pale coloration towards the back. Abdomen: Pale On the upper side, the cream color changes to cream along the line called the Spiracular line on the lower side before reaching the end. The lower surface of the segment is white. Transverse sclerotised struts, (fig. 5). The median process of the transtilla features elongated extensions at the middorsal junction, which are about of similar length. 50% of the saccus' length. The sacculus, which is noticeably shorter than the valva, divides into a hardened arm. Divide the length of the valva into three equal halves and locate the point that is one-third of the way from one end. The cross section has a costal border that is covered in bristles, while the posterior border is characterized by sawtooth-like projections that are more strongly hardened. There are varying lengths on the distal third.

At the top, there are one or two larger ones. The valva is broadest at its base and is surrounded by setae. The lengths of the ventral and dorsal margin edges are somewhat incised toward the subapical region. To a dull point. The vinculum bends. The aedeagus, depicted in (Fig.6) , is characterized by its short and stubby shape. The ductus Ejaculatorius, also shown in Figure 6, is located at the point where the vesica converges. The vesica is spherical in shape (fig. 6), measuring approximately two-thirds the length of the aedeagus, and is densely coated. characterized by little triangular denticles located in the outer third.

The Female (Fig. 2) The head exhibits a delicate hue ranging from pale yellow to butter yellow, while the palps and

antennae display a similar pale yellow color. The thorax has a paler coloration on the dorsum of the prothorax, in comparison to the head. Additionally, the tegulae and patagia are also present. At first, the color is a soft shade resembling butter yellow, and it remains consistent throughout. The dorsum of the prothorax fades to white towards the posterior end. Mesothorax On the upper side, the metathorax becomes white. The cream is located on the ventral side of the spiral line, extending towards the coxae. The prothoracic coxae are located proximally. Half of the femur is cream-colored, while the distal section of the femur, tibia, and tarsus are tan, resembling the color Vandyke Brown. The meso- and metathoracic coxae and leg are cream-colored. The length of the forewing is 13-15 mm, with a sample size of 17 and a mean length of 13.8 mm. The forewing, as seen in (Fig. 2), has a totally white costa. The upper surface of both the fore and hind wings is immaculately white. The ventral surfaces of the forewing and hindwing display a pale yellow coloration in front of the M1 vein, transitioning to a white coloration towards the rear.

The abdomen is white on the dorsal side and has a spiral pattern. The line on the abdominal segments in front of A7 is pale yellow, similar in color to butter. The head and abdominal segment are cream to yellow, with a ventral spiracular line. The genitalia (Fig. 7) do not have enlarged papillae anales. The cuticle seems grainy and is partially covered. Adorned with intricate setae. The apophyses posteriores and anteriores are slender and straight, with about equal lengths. The term "ostium bursa" refers to an opening or entrance of a bursa. Laterally enclosed by slender creases. The sclerotised segmental sterna come together toward the middle of the ventral side, creating a column. The lamella antevaginalis is protruding in the center. The presence of the ductus bursa is not easily discernible, unlike the corpus bursa. Arises immediately before the ostium. The corpus bursa is somewhat longer than the posterior apophyses and has a bulging shape with two equal diameters. The anterior part has a larger diameter. The specimen has two small, hardened, dimple-shaped structures called Signa that are positioned opposite each other on the sides.



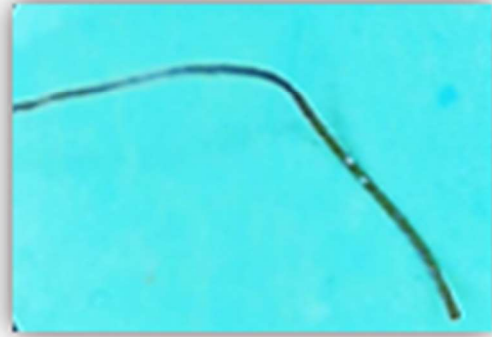
(Fig. 1) *C. pallida* male.



(Fig. 1) *C. pallida* female.



(Fig. 3) spurs and spines in leg of *C. pallida*



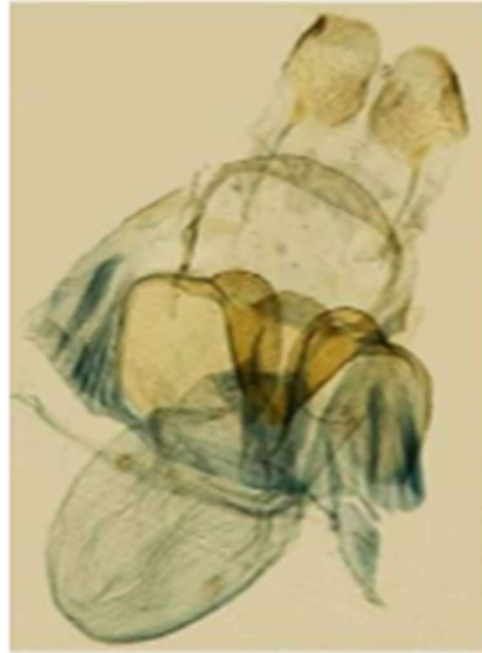
(Fig. 4) antenna of *C. pallida*



(Fig. 5) *C. pallida* male genitalia.



(Fig. 6) *C. pallida* zedeagus, inflated vesica.



(Fig. 7) Female genitalia of *C. pallida*

#### **SUMMARY:**

What was collected during the taxonomic review of the Arctiidae Study Project in Iraq serves as the basis for the current observations. Several Arctiidae species from Iraq were examined; Among them, *Crambida pallida* and other species other species still under investigation .The present observations are based on the collections made during the research project on taxonomic revision of Arctiidae in Iraq. A total number of many species of Iraq Arctiidae were studied, It is still under study .

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