

# New records of three *Latrodectus* species found in Khorasan province (Araneae: Theridiidae)

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Three Theridiid spiders of the genus *Latrodectus* occur in Khorasan province: *L. tredecimguttatus*, *L. pallidus*, *L. dabli*. The three are described, their diagnostic features are illustrated, and taxonomic notes are given where possible. Spider bites are very common in these regions, so, further notes about the medical importance of these species are given. A dichotomic key to the species of the genus *Latrodectus* is presented.

**Key words:** Theridiidae, *Latrodectus*, Widow Spiders, *L. tredecimguttatus*, *L. dabli*, *L. pallidus*.

## INTRODUCTION

*Latrodectus* is a genus of the family Theridiidae. It includes a suite of species commonly referred to as widow spiders. Roewer in his catalog "*Katalog der Araneae*" lists 21 species and 8 subspecies for *Latrodectus* and Bonnet in his "*Bibliographica Araneorum*" also lists 21 species. Levi (1959) in his world wide revision of the genus *Latrodectus*, reduced the number of species to six and recognized only the following species: *L. geometricus*, *L. mactans*, *L. pallidus*, *L. dabli*, *L. hystrix* and *L. curacaviensis* (Lotz, 1994). This genus has a worldwide distribution and comprises 30 currently recognized species (Garb, et al 2004). Probably, due to the medical importance of these spiders, substantial amount of effort towards their taxonomy has been generated (Levy and Amitai, 1983; Levi, 1959; Lotz, 1994).

A survey on spiders of Khorasan province (east of Iran) has revealed the existence of three *Latrodectus* species (Family Theridiidae) from the area. These species are new records for the area. Widow spiders are difficult taxonomically and readily separated from members of other Theridiid genera. These poisoning spiders are responsible for serious bites in the northern parts of Khorasan province.

There are three species of the genus *Latrodectus* that are known to occur in Khorasan province: *L. tredecimguttatus*; *L. pallidus*; *L. dabli*. Previously *L. tredecimguttatus* was reported from Mediterranean countries, North Africa, Central Asia, Saudi Arabia and Israel, *L. pallidus* from Russia, North Africa, Israel, Turkey and Iran and *L. dabli* from the southern parts of Iran, Israel and Central Asia (Lotz, L. N. 1994; Levi, H.W. 1959).

There are two aims in the present study. The first is to provide reliable descriptions that will allow unambiguous and true identification of *Latrodectus* species of Khorasan province. The second aim is to provide information on the distribution and biology of widow spiders to enhance future studies.

## MATERIAL AND METHODS

The descriptions given are based on specimens collected in the field. The specimens were collected from different regions of Khorasan province (Fig. 1), preserved in 70% alcohol and

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FIG.1. – Collection localities of *Latrodectus* spp. in Khorasan province.

Studied under a stereomicroscope; and the drawings were made by a drawing-tube connected to the stereo microscope. The material was labeled and deposited in the Zoology Museum, Ferdowsi University of Mashhad, Iran (ZMF).

## RESULTS

### Genus *Latrodectus* Walckenaer, 1805

**Synonym:** *Chacoca* Badcock, 1932; Levi 1959:18; Levi & Levi 1962: p.18.

**Type Species:** Designated by Latreille, 1810. *Araneae tredecimguttatus*

Large Theridiid spiders, females large but males much smaller; lateral eyes are separated from each other at least a diameter; Abdomen globose and usually black; Chelicera without teeth; the carapace is pear shaped, thoracic region of carapace is wider than cephalic region; The first legs are usually longer than the fourth and the third are the shortest; A distinct Theridiid tarsal comb present on the ventral surface of fourth tarsus; Cololus large; Epigynum wider than long and are relatively similar in different species. Internal female genitalia in all species is similar in having one pair of dumb-bell shaped seminal receptacles, and coiled spermathecal ducts, the length of connecting ducts variable in different species; Male palp consist of a long coiled embolus, the length of embolus variable in different species (Levi, H.W. 1959; Lotz, 1994). These spiders are frequently recognized by red abdominal hourglass marks.

**KEY TO THE SPECIES OF *LATRODECTUS* IN KHORASAN PROVINCE**

- 1- Abdomen white to creamy with two rows of dark spots. Yellowish hourglass marking present on the venter of abdomen; with three spermathecal ducts; Embolus with three loops . . . . . *L.pallidus*  
 - Abdomen brown to black; Adult females lack complete hourglass marking..... 2
- 2- Dorsal surface of abdomen with short bifurcate setae; spermathecal ducts with four Loops; Embolus with three loops..... *L.tredecimguttatus*  
 - Short abdominal setae simple; Spermathecal ducts short and with two loops . . . . . *L.dabli*

***Latrodectus tredecimguttatus***

*Araneae 13-gullatus* Rossi, 1790; Levi,H.W.1959.p.24;Lotz, 1994.p.52.

*Latrodectus mactans* Walckenaer, 1805; Levi.H. W. 1959.p.24; Lotz, 1994.p.52

*L.mactans tredecimguttatus* (Rossi); Levi.H. W.1966.p.431; Lotz, 1994.p.52.

*Meta schubchii* C.L.Koch, 1836; Levi,H. W, 1959.p.26; Lotz, 1994.p.52.

*L.schubchii* C.L.Koch, 1837; (Synonym?). Lotz, 1994. p.52.

**MATERIAL EXAMINED:**

Mashhad: Soron (5F) & (2M); Zoshk(5F)&(3m); Golmakan (2F); Derakht Bid (2F); Shirvan: Topkanlu (1F).

**REDESCRIPTION**

Abdomen black, the female dorsal pattern if present (usually in young females) consist of several orange spots (some specimens have a red spot above the anal tubercle). Adult females lack the dorsal pattern and ventral hourglass reduced to two transverse orange to red markings. The male dorsal pattern is similar to those of young females (Fig. 2A); legs in adult males and females are dark brown to black; the dorsal abdominal spination in females consists of two types of setae: long setae and smaller bifurcate setae. Bifurcate setae are the distinguishing character for the females of *L.tredecimguttatus*.

Female genitalia: Spermathecal ducts with four loops. Epigynum is oval, wider than long (Fig.2B,C).

Male palpus: The embolus with three loops (Fig.2D).

Habitat: Web of *L.tredecimguttatus* is on the ground. These spiders are found under stones, in holes, gardens or near human environments. They make an irregular catching web. The females make several white to yellow egg sacs after mating (June to October). Egg sacs are mostly globular with a nipple and contain 131 to 300 eggs. Spiderlings brown to black with several white spots.

Records: Mashhad: Soron, Noor Abad, Golmakan, Derakht Bid, Zoshk; Shirvan: Topkanlu.

***Latrodectus pallidus* O.P.-Cambridge, 1872**

*L. pallidus immaculatus* Caporiacco, 1933 ;Lotz,1994.p.43; Levi.H.W.1959.p.38

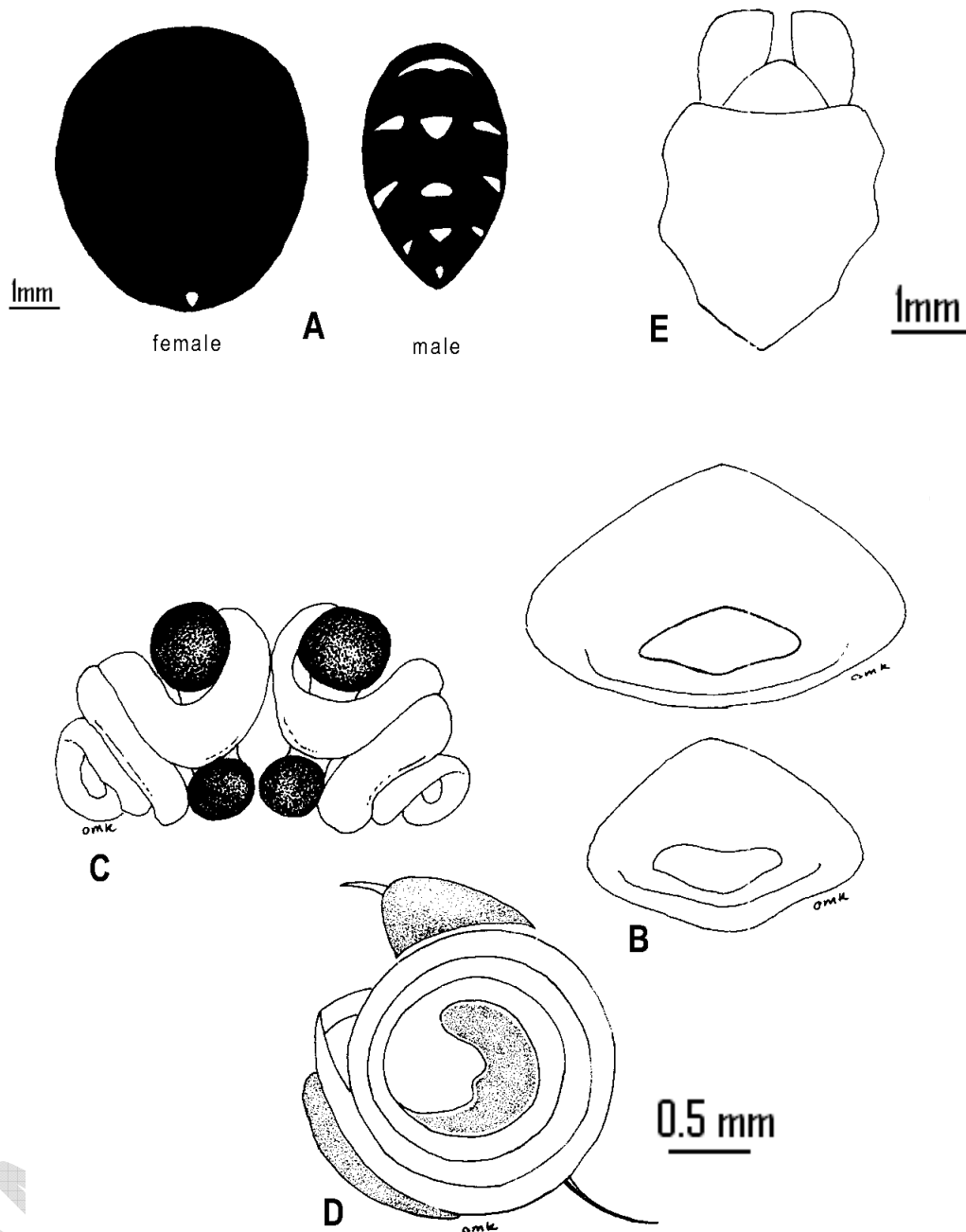
*L.pallidus pavlovskii* Charitonov, 1933; Levi.H.W.1959. p.38

**MATERIAL EXAMINED:**

Gonabad: Bidokht (11F)&(3M). Kakhk: Kalate-Saberi(1F); Qaen: Khezri (6F);Gerimenj (1F).

**REDESCRIPTION**

Dorsal abdominal color is the main distinguishing character of males and females from two other species. Abdomen cream to white with dark spots dorsally and the cream hourglass marking ventrally.



**FIG.2.** – *Latrodectus tredecimguttatus*. A) Abdomen, dorsal pattern in male and female; B) Epigynum; C) Genitalia; D) Male left palpus ; E) Sternum

Female genitalia: Epigynum is oval, wider than long (Fig.3B). Spermathecal ducts with three loops (Fig.3C).

Male palpus : The embolus with three loops as in *L.tredecimguttatus* (Fig.3D).

Habitat: In Khorasan province this species is found only in deserts of south regions. The web is 30-40cm above ground level. Egg sacs are globular in shape and smaller than other species. Spiderlings are white, these egg sacs have often been parasitized by some Hymenopterous parasitoides belonging to the family Ichneumonidae. Several infected egg sacs have been collected from Qaen and Gonabad.

Records: Gonabad: Bidokht, Kakhk ; Qaen: Beskabad, Gerimenj, Khezri; Tabas and Birjand.

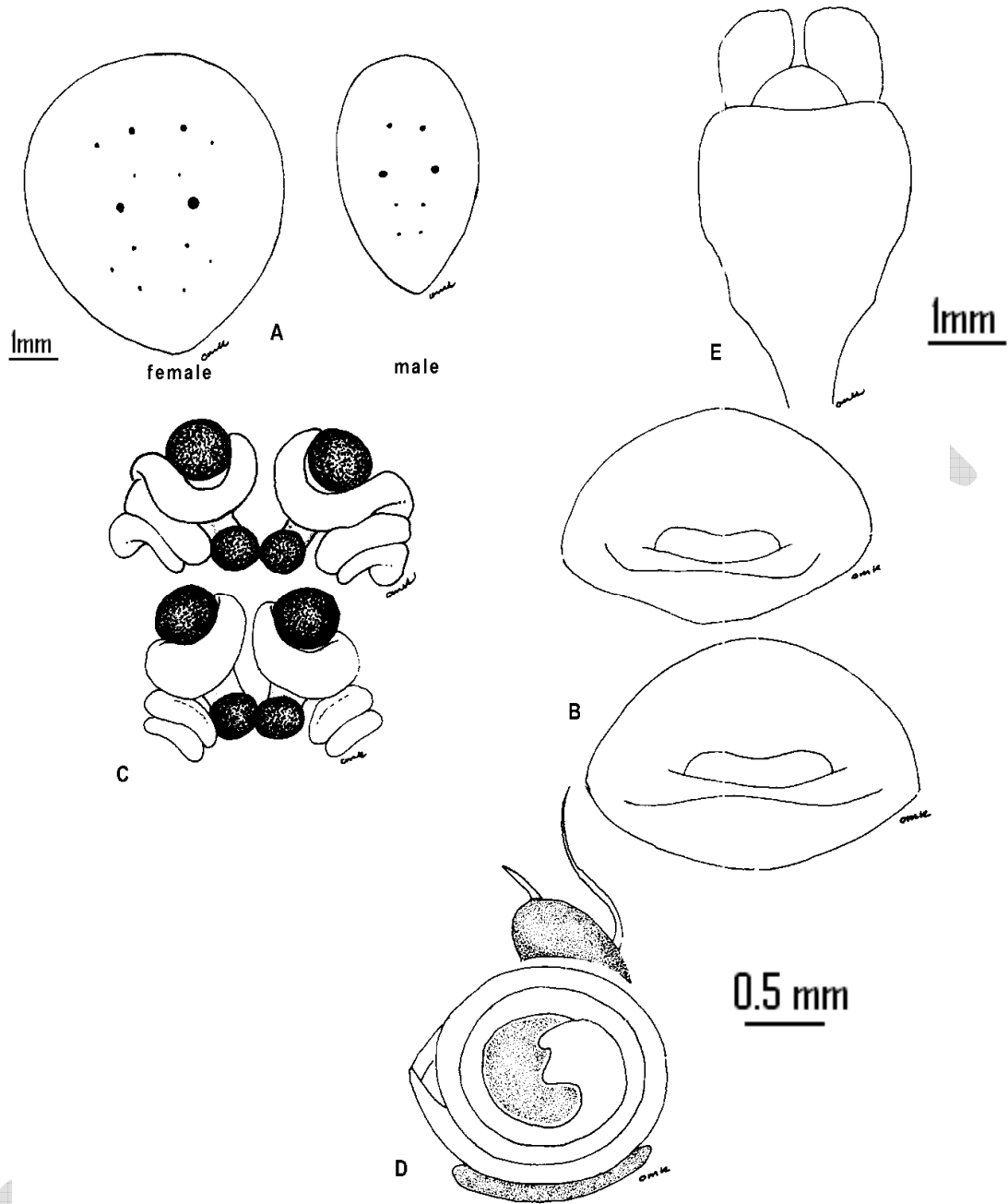


FIG.3. – *Latrodectus pallidus* . A) Abdomen, dorsal pattern in male and female; B) Epigynum; C) Genitalia; D) Male left palpus ; E) Sternum

***Latrodectus dahli* Levi, 1959**

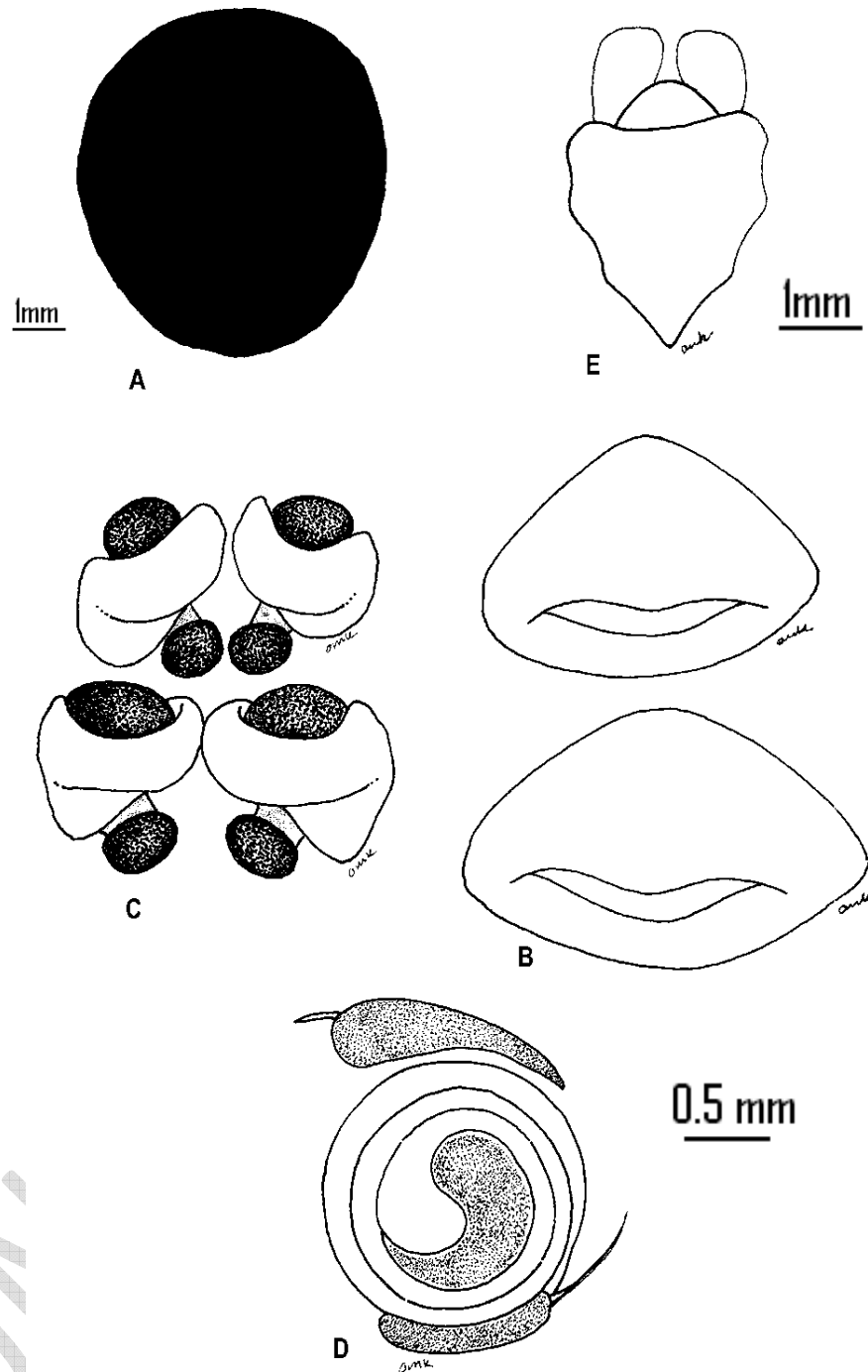
*L. dahli* Levi, 1959: 42, f. 11-12

**MATERIAL EXAMINED:**

Gonabad: (2F) 3km E Kakhk; (1F) 5km N Kakhk; Zibad: (1F); Birjand(1F).

**REDESCRIPTION**

Abdomen in males and females is brown to black, without any color patterns. Dorsal surface of abdomen in females is covered by long setae and smaller simple setae.



**FIG.4.**— *Latrodectus dablia* . A) Abdomen, dorsal pattern female; B) Epigynum; C) Genitalia; D) Male left palpus ; E) Sternum

Epigynum: Typical, wider than long and with a transverse groove on each side of opening. Spermathecal ducts with two loops. The embolus is shorter than two other species and with two loops (Fig4B, C).

Male palpus: The embolus with three loops as in *L.tredecimguttatus* (Fig.4D).

Habitat: Web is on ground as in *L.tredecimguttatus*. Egg sacs are fluffy, white and globular.

Records: Gonabad (Kakhk, Zibad), Birjand.

Previously, this species was recorded from southern part of Iran (Bushire); Israel and Central Asia.

## DISCUSSION

The genus *Latrodectus* has a worldwide distribution and several members of this genus are synanthropic and are often found in areas around houses and garden sheds. In some species of this genus such as *L. geometricus* the cosmopolitan distribution is a consequence of human transport (Garb, 2004). *Latrodectus* bites are very common especially in the northern parts of Khorasan province. In these areas *L. tredecimguttatus* is responsible for the life threatening bites. There are not any records of envenomation by the other two species.

Field studies on these spiders have revealed that there are distinct morphological, behavioral and ecological differences between them. So, these characteristics provide important information in the case of systematic study of these spiders.

## ACKNOWLEDGEMENTS

This study was supported by grants from Ferdowsi University of Mashhad no. 46498, which is greatly appreciated.

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