

## FIRST RECORD OF RED-BACK SPIDER FAMILY THERIDIIDAE AND SPECIES LATRODECTUS HASSELTII (THORELL, 1870) (ARANEAE: ARACHNIDA) FROM DISTRICT GWADAR BALOCHISTAN, PAKISTAN

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### ABSTRACT

*Latrodectus hasseltii* (red back spiders) species belong to family theridiidae this was first reported by Thorell, 1870 from tropical and sub-tropical regions. The red back spider (*Latrodectus hasseltii*), is a very poisonous species of spider. This species is well designated by their distinctive morphological structures and their male and female distinguish morphology. Morphometric features support vital discernments to its physical features, for identifications of the particular species, their behavioral and environmental analysis. Females of this species are significantly bigger than their males, usual body measurements of 25-17 mm, paralleled to 12-10 mm of males. Female of this species are described by the spherical abdomen, having protruding red stripes on dorsal part, whereas males frequently show bright color stripes. Leg sizes expose a distinctive leg formula which is  $IV > I > II > III$ , imitating for their prey capturing and web production. The Pede palps of the males are extremely focused for their mating purpose and are divergent structurally in their structure from the females. Their morphometric qualities sustenance spider's for reproductive process and their predatory approaches. Advance studies participating morphometric approaches which can boost up our understanding about the red back spider's compliance and population dynamics through various habitations. This species also first time recorded from district Gwadar Balochistan, Pakistan. This research work is based on ecology and morphometric of *Latrodectus hasseltii* species (Thorell 1870) from Gwadar Balochistan Pakistan.

**Keywords:** tangled-web, theridiidae, red-back, Gwadar, Baluchistan

### INTRODUCTION

Spider's fauna is broad and extended in all over the world. In kingdom Animalia, spiders belong to class arachnids, this is separate class of phylum arthropods. There are about 48,000 different species of various spiders present in the world. All spiders are described by their distinct two main body parts, including abdomen and cephalothorax and four pair of legs but having no any antennae and wings on their body parts. eyes of spiders are also play key role for their morphometric identification such as salticidae are jumping spiders, are known by their tremendous

sight and these are capable to jump more than their body size. All jumping spiders contain eight eyes organized into two rows, arranging four eyes in the front row and other four are present into back row, araneidae are called orb-weaver spiders these spiders contain eight eyes, which have arrangement of two rows having each of four eyes. lycosidae are generally called wolf spiders are predators, they contain eight eyes which have arrangement of three rows, in the first row four small eyes are present at the bottom side and two large eyes are present into middle of row, while

two median-sized eyes are present on top of row. Some spiders are also known as cob-web spiders. These spiders included into family theridiidae. These spiders have eight eyes, arranged into four of two rows, front rows of eyes are straight and back rows eyes are slightly curved structures, while mid two eyes present at front rows are few larger than other six eyes, mostly these are frequently denoted as "principal eyes// of spiders. These spiders are also characterized by their venomous behaviors. These spiders are may be dangerous to various organisms, vertebrate including humans. Among poisonous specious genus latrodectus is also considered poisonous species of the theridiidae family. These spiders live in tropical zone of the earth. They have highly powerful neurotoxin (latrotoxin) venom, which mostly effect on nerve system of living organisms <sup>[9]</sup>. *I. hasselti* are belongs to widow spiders. After biting reddish inflammations appear on infected parts of body. Effected peoples on high risk of death due to escalation of respiration, faintness in the muscles, nausea, increased in pressure of blood and high temperature. The peoples are at high risk, especially those peoples which have already some heart disorder <sup>[3]</sup>. many more time of pain increase as compare to sting of bees, moreover with in few half an hour after biting pain increases much more times <sup>[4,8]</sup>. In Gwadar Balochistan still no any biting report yet have been reported due to unaware about the poisonous behavior of this species (*I.hasselti*). This species is found at dark places of buildings near hole in walls, outdoor, indoors and old furniture's. This species of spider specially form web in dry places, e.g. in the mid of the stones, under woods, shelters, tunnels and near sand dunes <sup>[5]</sup>.

## 1.2 Pakistan history

From literature and internet resources about genus latrodectus, species *Latrodectus hasselti* family theridiidae is very poorly reported in Pakistan. Only work from province of Sindh described by ursani 2014 and Mohammad Luqman at el 2021 from district sohatpur Balochistan have been reported.

It is very vital to explore such parts of Balochistan where researchers could not get opportunities to go for research.

In Baluchistan especially southern parts of Baluchistan which are connected to border of Iran, have good climatic habitat for spiders, southern-east parts of Baluchistan include Gwadar. There is no any research carried out yet on Family theridiidae especially genus latrodectus and species *Latrodectus hasselti* in southern parts of Balochistan, their fore current research is focused on ecology and morphometric studies of family Theridiidae especially genus latrodectus and species *Latrodectus hasselti*, for first time reported from district Gwadar Balochistan Pakistan.,

## Studying area

Gwadar city located in Balochistan provinces of Pakistan. This city located south-east region on the bank of Arabian Sea in Pakistan. The Latitude: 25°07'17.87"N and Longitude: 62°19' 31.48" E. In the east of Gwadar, it linked with chahhbar port of Iran, its south connects with Masqat by sea route, in the north, district Kech is present while in east it links with district Lasbella.

This district is not considered as agricultural district but in few places vegetables and some horticulture have observed. The people of this district mostly depend upon fishing technology. Distract Gwadar is not being considered as agro-economically part of this country but instead of that it has large species of arachnids and sea bird.



## Materials & Methods

### 2.1 Spiders collection

This Holotype male and female species of *Latrodectus hasselti* of family theridiidae was collected from different areas of district Gwadar Balochistan Pakistan. The collection of these holotype male and female species were done in the month January 2022 to October 2022, these were present inside of their near water drainages, near old furniture, washing pipes and on the bank of vegetables areas. Mostly their occurrence was possible in fallen leaves of trees and vegetables. Specimens were collected in the vial contain seventy percent ethanol and distilled water with few drops of glycerin. These specimens were

transferred to university of Sindh Jamshoro for further analysis.

**2.2 Identification and morphometric of spiders:** Identification and morphometric of these specimens were done under LED microscope. All body parts of spiders were measured in mm including their length and width of body, cephalothorax, chelicerae, fangs, palp, abdomen and legs. For identification of spiders physical characters were also observed such as coloration of body eyes arrangements, female epigynum. According to taxonomical keys {2} by the females' abdomen epigynum were observed carefully under microscope. Epigynum borders were picked very carefully with forceps than cover was also removed by slowly and gradually



Figure no: identifying *L. hasselti* red back spiders under microscope



**Figure: showing dorsal view of *L. hasselti* (red back) on eggs in web at gwadar balochistan**



**Figure no 3: showing different specimens of red back (*L. hasselti*) spiders from Gwadar Balochistan**

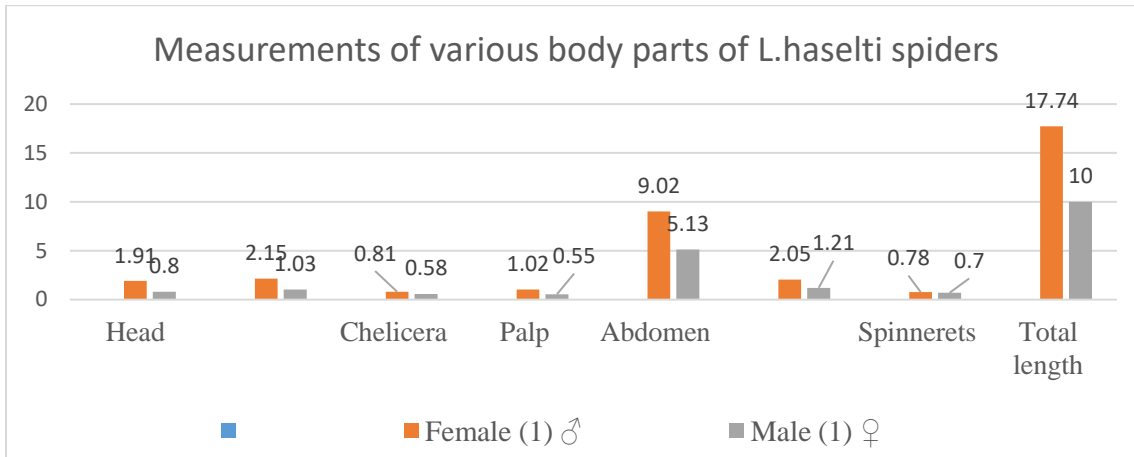
### 3 Results

Morphology of this spiders, physically these spiders are black color with red row in the back of their abdomen. On upper region of abdomen possess extra red marking so called red back widow spiders<sup>[7]</sup>. Body size is about large pea size and legs are mostly slender. The red markings sign present on body is somehow different. The morphology of body is totally

blackened except red marking on abdomen. After few days these red marking changed from red to become dim yellowish color due to ethanol and distilled water. The adult females are 16.62 to 17.74 mm long and their leg lengths are measured in mm about 29.85 to 40.21 mm, and on back of abdomen contain red strip while under side of abdomen is totally dark in color.

**Table 01) showing morphometric measurements (in mm) different body parameters of L. hasselti of four specimens**

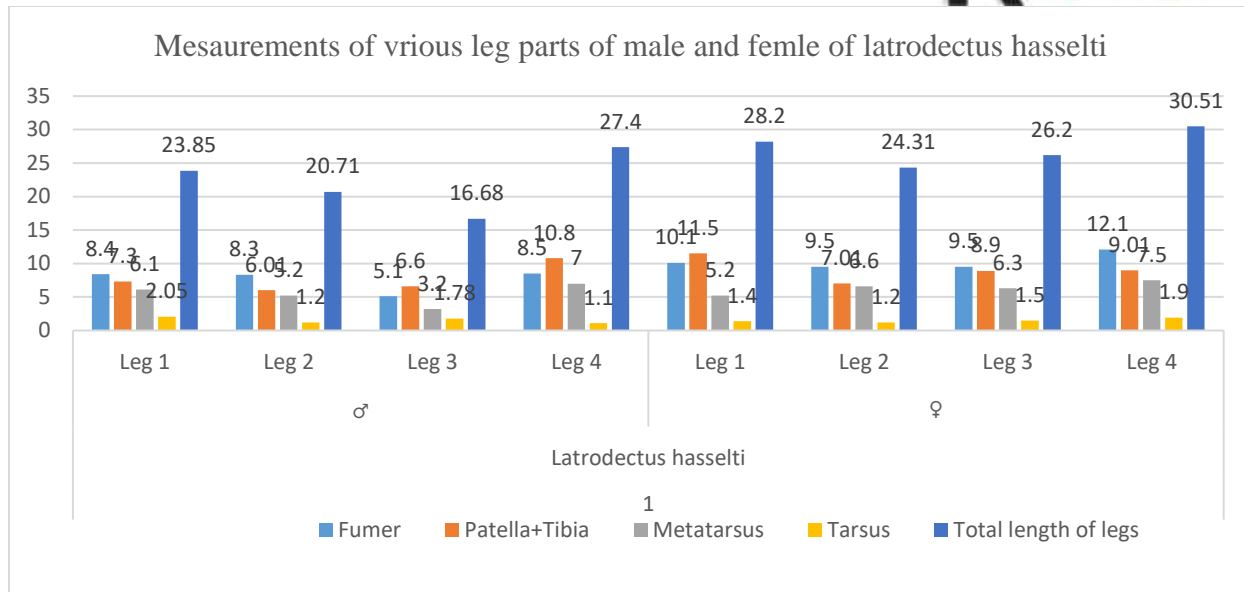
Specimens	Sex	Head		Chelicera	Palp	Abdomen		Spinnerets	Total length
		Length	Width	length	Length	Length	Width	Length	
Female (1)	♂	1.91	2.15	0.81	1.02	9.02	2.05	0.78	17.74
Male (1)	♀	0.80	1.03	0.58	0.55	5.13	1.21	0.7	10



**Figure: showing measurements of various body parts of L. hasselti spider**

**Table no2 showing morphometric measurements (in mm) different body parameters of L. hasselti spider**

Specimen	species	sex	Leg length	Fumer	Patella+Tibia	Metatarsus	Tarsus	Total length of legs
1	Latrodectus hasselti	♂	Leg 1	8.4	7.3	6.1	2.05	23.85
			Leg 2	8.3	6.01	5.2	1.2	20.71
	Leg 3		5.1	6.6	3.2	1.78	16.68	
	Leg 4		8.5	10.8	7	1.1	27.4	
	Female	♀	Leg 1	10.1	11.5	5.2	1.4	28.2
			Leg 2	9.5	7.01	6.6	1.2	24.31
			Leg 3	9.5	8.9	6.3	1.5	26.2
			Leg 4	12.1	9.01	7.5	1.9	30.51



**Figure: showing morphometric measurements (mm) of different leg parameters of *L. hasselti* of four specimens**

#### 4. Conclusion:

*L. hasselti* is often easily recognized by their coloration pattern on back of the abdomen. The color on outer part of abdomen have clearly red striped running from cephalothorax up to spinnerets of spiders, while lower surface of abdomen is completely black in color and have a broad red strips which is present on the upper surface of the abdomen, up to spinnerets. After preservation on long time its red color changed. This is first time research work have been done on *L. hasselti* from distinct Gwadar Balochistan Pakistan.

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