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Scientific Note

First Records of Black Widow Spider *Latrodectus* Walckenaer (Araneae: Theridiidae) in Oman

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Abstract. The present communication deals with a faunistic study on two species of *Latrodectus* Walckenaer with medically important issues from Oman. Several specimens of *Latrodectus* have been collected at various localities in Sultanate of Oman. This study records two species of *Latrodectus* from Oman, of which *Latrodectus cinctus* Blackwall only from northern Oman and *Latrodectus geometricus* C.L. Koch from both northern and southern Oman.

Keywords: Arabian Peninsula; Araneomorphae; distribution; new record; Oman.

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The genus *Latrodectus* Walckenaer belongs to the Theridiidae family (Arachnida: Araneae). It has a worldwide distribution, across multiple continents (World Spider Catalogue 2022). Members of the genus are notorious due to the highly venomous potent neurotoxin a-latrotoxin which causes massive envenomation in vertebrates (Orlova *et al.* 2000). Females of the genus have the largest body among comb-footed spiders, with body length reaching 20 mm in females. The males are much smaller and more colorful than females and sexual dimorphism is remarkable in this genus (Knoflach & Harten 2002). Females may also show remarkable red and black coloration which has been interpreted as a warning signal (Bristowe 1946). *Latrodectus* species are generalist predators with a broad diet and are known to feed on insects, arachnids, and crustaceans as well as on small vertebrates like lizards, geckos, and mice (Forster 1995; Hodar & Sanchez-Pinero 2002). This may partly explain the presence of a vertebrate specific toxin in their venom. The distant part of each chelicerae is a mobile hollow fang with the ability to penetrate the skin during a bite, injecting venom into the prey (Cavusoglu *et al.* 2005). Several *Latrodectus* spiders are synanthropic, associated with human habitats, and often found around houses, garden sheds, and barns (Smithers 1944; Muller 1993). Members of the *Latrodectus* genus are among the few spiders that cause medically significant bites, because of their affiliation with modified landscapes and possession of a-latrotoxin (Garb *et al.* 2004). *Latrodectus* bites most commonly result in severe muscle pain, cramps, and nausea for humans but is only occasionally fatal (Maretic 1983; Muller 1993). Thirty-four known species of *Latrodectus* are present globally (World Spider Catalogue 2022), from those, six have been reported from the Arabian Peninsula. The knowledge of Theridiidae in the Arabian Peninsula is still insufficient and unbalanced. Relatively well studied is the Black Widow Spider fauna from Yemen. Knoflach & Harten (2002) recorded six species of *Latrodectus* from the Arabian Peninsula and Socotra Archipelago: *Latrodectus cinctus* Blackwall, *Latrodectus dahli* Levi, *Latrodectus geometricus* C.L. Koch, *Latrodectus hystrix* Simon, *Latrodectus pallidus* O. Pickard-Cambridge and *Latrodectus renivulvatus* Dahl. Theridiidae fauna is virtually unknown in Oman. The species from Oman presented in this paper are necessarily incomplete, because most of the specimens were collected from limited localities in northern and southern Oman with few methods used in the collecting. However, the goal of this paper is to provide the first faunistic record on Theridiidae of Oman and to increase the knowledge of the geographical distribution of this family in Oman. Here we review all the available material of Theridiidae, reporting two species of *Latrodectus* as new records to Oman. The specimens in this study were either collected from different regions in the north and south Oman or were available at the student collection of Sultan Qaboos University. They were identified by all authors. The specimens examined are deposited in the private collection of the author, Samad Ashan, Al Mudhaibi, Oman. The identification key of adult females was based in the identification guide to species of the *Latrodectus* in the Arabian Peninsula by Knoflach & Harten (2002).

SPECIES LIST

Latrodectus cinctus Blackwall Figure (1)

Examined specimens. 1♀. Asharqyiah North, Ibra, 13.vi.2018. **1♀.** Abduallah; Al Batinah North, Shinas, 7.iv.2018, R. Al-Gabri. **1♀.** Asharqyiah North, Samad Ashan,10-20.v.2018. **1♀.** A. Al-Jahdhami; Muscat, Al-Khoudh, 2013, A. Al-Jahdhami. **1♀.** Al Batinah South, Arrustaq, 2013, A. Al-Jahdhami.

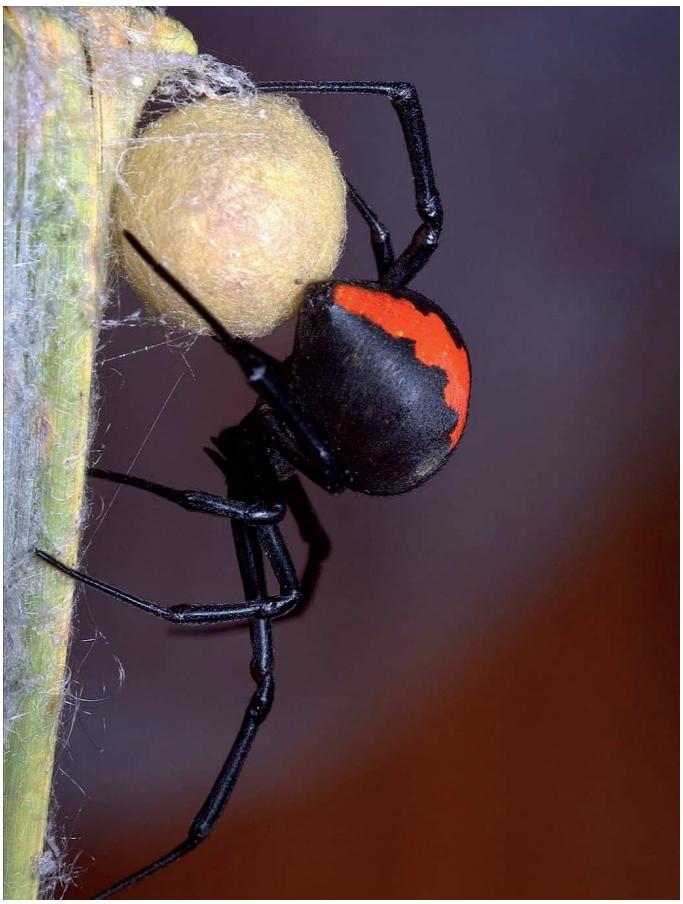

Figure 1. Habitus of female of the *Latrodectus cinctus* Blackwall.

Biological characteristics. The morphology of females from Oman matches (color pattern, number of coils of copulatory ducts) the description of Knoflach & Harten (2002). Spermathecal ducts of the female vulva with three loops [see Knoflach & Harten (2002) for the duct figures]. The color pattern of *L. cinctus* strongly resembles *L. hasselti* Thorell and *L. renivulvatus*; these three species can be diagnosed by the pattern of their abdominal setae and minor differences in genital organs (Zamani *et al.* 2014). The coloration of opisthosoma varies dramatically in adult females from dark brown/black without patterns to brown/black with different longitudinal/transversal red/orange stripes (Zamani *et al.* 2014). All examined females have a long orange median band on the dorsum of opisthosoma and their tarsi is dark brown or black. However, we believe there are some color variations among the other specimens since we did not confirm the identification.

Natural history. These specimens were collected in urban areas, around homes, gardens, and green-houses. The webs were built close to the ground and were rarely observed built up to one-half meter above the ground.

Poison. The poison of *L. cinctus* has been not studied (Lotz 1994). A study from Iran described the clinical treatment of a bite of *L. cinctus*. This bite of *L. cinctus* can cause a slight burning sensation turning into a painful feeling after 15 min, then sweating and spreading of the pain from the bite site to the upper limbs (Nejati *et al*. 2022). Anti-venom injection is considered a most useful treatment for latrodectism, supportive treatment, especially the prescription of fluids and analgesics (Sanaei-Zadeh 2017).

Distribution. Cape Verde Is., Africa, Kuwait (World Spider Catalogue 2022), Iran (Zamani *et al.* 2014). This is the first record for Oman restricted to northern Oman.

Latrodectus geometricus C.L. Koch Figure (2)

Examined specimens. 1♀ Dhofar, Taqah, Ain Athum 9. iii.2020, leg. Ali Al-Jahdhami; **1♀.** Samad Ahan, Ba ad, 14.vi.2020, leg. Ali Al-Jahdhami.

Figure 2. Habitus of female of the *Latrodectus geometricus* C.L. Koch.

Biological characteristics. The females of *L. geometricus* from Oman match the morphological description of Knoflach & Harten (2002). Color Pattern: carapace with darkened margin and median band, the sternum is brown with the tapering median band. Legs are brown with apical femora, patella, and tibiae black. Opisthosoma is a light brown and dorsal pattern consisting of three rows of dark and white patches. Two paramedian rows of dark spots are surrounded by white patches, which extend laterally and anteriorly. The venter of the opisthosoma has a distinct red hourglass marking. The ducts form a double helix and four outer coils, [see Knoflach & Harten (2002) for the duct figures].

Poison. Knoflach & Harten (2002) reported that poison effects of *L. geometricus* are not as severe as those of its congeners. The poison symptoms by *L. geometricus* were relatively mild and restricted to the bite site and surrounding tissues (Muller 1993). The LD50 value for mice is 233 micrometer of protein and the LD50 per spider is 56 micrometers only (Muller *et al.* 1989). The spider is considered an unaggressive species (Baerg 1959).

Natural enemies. parasitoids of the genus *Eurytoma* (Hymenoptera: Chalcidoidea: Eurytomidae) have been observed emerging from the egg sac of *L. geometricus* in specimens collected from the Dhofar region. *Eurytoma*

arachnovora Hesse was reported as parasitoid during the rearing of *L. geometricus* (Baerg 1959). *Eurytoma abalosi* De Santis and *Tetrastichus* sp. (Hymenoptera: Chalcidoidea: Tetrastichinae) frequently parasitized the egg sacs of *L. geometricus* in Argentina (Abalos & Baez 1967).

Distribution. *Latrodectus geometricus* occurs in all continents and most commonly in Africa where it is suggested to be native (Levi 1959). It is recorded from Yemen, Socotra (Simon 1890; Pocock 1903), and Saudi Arabia (Levi 1959) in the Arabian Peninsula. This is the first record for Oman and occurred in both northern and southern of Oman.

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