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Hyperaspis leechi a new contribution to the coccinellid fauna of Pakistan

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Abstract

Present study was carried out during 2011 to 2014 to explore the *Hyperaspis leechi* fauna of Malakand Division. Only six species were recorded from Maidan valley of District Dir lower. *Hyperaspis leechi* was a new contribution to the coccinellid fauna of Pakistan.

Keywords: Coccinellid fauna, *Hyperaspis leechi*, Malakand Division, Pakistan.

1. Introduction

The coccinellids, commonly called as ladybird beetles, belong to family Coccinellidae. Six subfamilies of Coccinellidae Coccinellinae, Chilocorinae, Coccidullinae, Sticholotidinae, Scymninae and Epilachninae have been recognized [1]. The subfamilies Coccinellinae, Chilocorinae, Coccidullinae, Sticholotidinae and Scymninae are predacious while Epilachninae is phytophagous in nature [2]. More than 6000 species of coccinellids have been reported worldwide including 400 species from Pakistan and India [3, 4]. About 90% species of coccinellid beetles are predator mainly against homopterous insects (aphids and scale insects) and phytophagous mites, which are injurious to various agricultural crops and forest plants [5]. Keeping in view the importance of these useful predators and poor attention in the past, there is need to explore the coccinellid fauna found in Malakand division.

2. The study area

Malakand division is located on 35.5E° and 72N° coordinates of the KPK Province of Pakistan with a total area of 29872 km². Malakand division is a mountainous area with peaks rising to 4876 m in the north east and to 3049 m along with Afghanistan to the West. The division is divided into seven districts of Swat, Buner, Shangla Lower Dir, Upper Dir, Chitral and district of Malakand. Malakand division is bounded on the north by Afghanistan on the East by Hazara division, on the south east and south west by Mardan and Charsadda districts respectively and on the west by Mohmand and Bajour Agencies [6].

3. Methodology

The collection of *Hyperaspis leechi* was carried out from different parts of Malakand division from 2011 to 2014. The collected specimens were killed by ethyl acetate. The specimen were protected and handled carefully to avoid damage, from humidity and museum pests attack. Inside the collection boxes phenolphthalein balls were placed for protecting specimens from pest attack. The specimens were deposited in the Zoological Museum, Hazara University, Mansehra. For the extraction of genitalia and mouth parts of the coccinellid beetles methodology as per Majerus and Kearns (1989) and Naz (2013) were followed with some modification [7, 8]. The specimen were described following Boving (1917), Kapur (1968), Katakura *et al.* (2001) and Rafi *et al.* (2005) [9, 10, 11, 2].

4. Results and Discussion

Hyperaspis leechi (Nunenmacher, 1934)

1934 *Hyperaspis leechi* Nunenmacher, The Coccinellidae Coleopteran of America North Mexico journal of the New York Entomological society, vol no 1. 1-912

Material Examined: 2♂ 2♀ Malakand, Dir L., Guldehri, 28. vii. 2010 (Rahatullah); 2 ♂ Malakand, Dir L., Gulabad, 12. viii. 2012 (Rahatullah).

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Diagnosis: Body slightly rounded convex, black shiny and densely punctate. Head is transverse black with rounded base and trapezoidal anterior margin, deeply inserted and not visible from above, anterolaterally yellowish spots, eyes large and with green. Body slightly rounded convex, black shiny and densely rounded yellowish spots. The spots were six, two on each elytron and two on head region (Fig. 1).

Genitalia: Male genitalia: Phalobase, trab long and complicated, the head of the trab narrowed at start and broad at apex, diagonal at apex. Median lobe thick, at base up to most of its length and then straight to apex. Parameresthick and curved into inside and constricted and rounded to apex, provided with dense hairs. Siphon, capsule thick, out arm straight, inner arm straight and broad at base and gradually narrowed at apex. Siphonaltube thick, broadly curved at base, gradually tapering toward apex, terminated sharply (Fig. 2).

Remarks: The same species were identified as *Hyperaspis rahatiana* by Rahat Ullah in 2010 recorded from District Dir Lower ^[1]. *Hyperaspis leechi* feeds on *Aphis craccivora* and is very rare species in Pakistan. The spots of this species are variable which is quite large and subtriangular.

Host: Species were collected from *Helianthus annuus* and *Zea mays* infest with *Aphis craccivora* during this study.

Earlier Record from Pakistan: New to Pakistan.

Seasonal Occurrence: Two specimens were collected in July and four in August.

Distribution: *Hyperaspis* is worldwide in distribution. 294 species were recoded from America, 27 species from Palearctic, 19 from Russia and 3 species from Far East ^[5]. During this study one species *Hyperaspis leechi* were recorded from Maidan valley of Malakand division (Fig. 3).



Fig 1: General features of *Hyperaspis leechi*

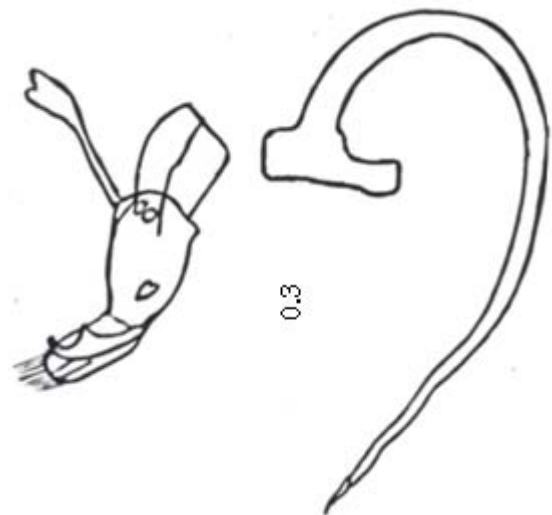


Fig 2: Male genitalia of *Hyperaspis leechi*

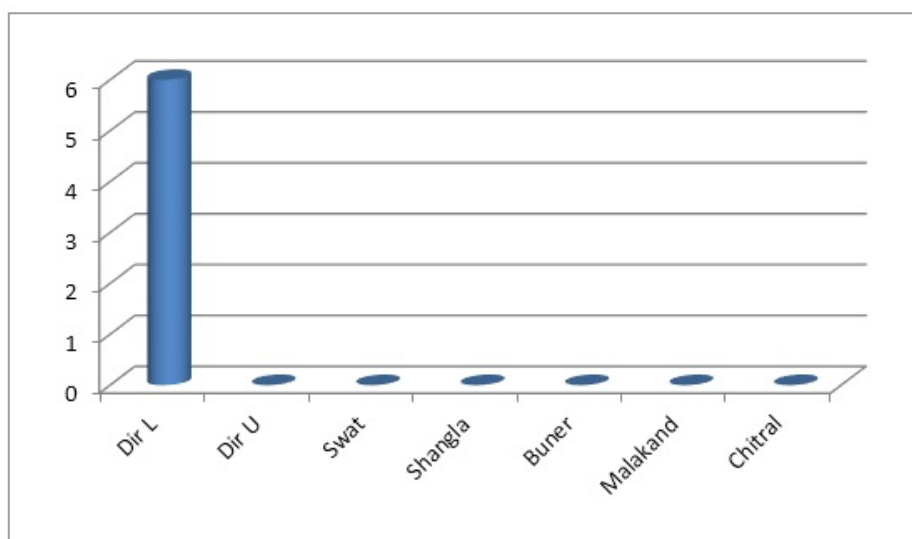


Fig 3: *Hyperaspis leechi* recorded from different localities of Malakand Division.

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