



E-ISSN: 2320-7078

P-ISSN: 2349-6800

JEZS 2015; 3 (1): 75-77

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Received: 19-12-2014

Accepted: 12-01-2015

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The first report of the Solifugae (family: Galeodidae, Sundvell 1833) from Madhya Pradesh, India

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Abstract

The most important studies on Indian families of Solifuges were done nicely during time of British India. The known distribution of Solifugae families in India is still fragmentary, with large areas without records. Solifuges have not much studied in Indian species. That is why studies based on distribution are at most importance. Solifugae are distributed throughout the tropics and subtropics, mainly in desert or other warm environment. The families represented in the fauna of British India may be diagnosed as Galeodidae & Solpugidae. The present work extends the records for this order to the Alirajpur, Madhya Pradesh, India. This study is to determine whether Alirajpur district is an important ground for the Indian Solifugae family Galeodidae.

Keywords: Solifugae, Galeodidae, Alirajpur, India

1. Introduction

Members of the family Galeodidae are known from northern Africa through Asia. The order comprises over 1000 described species in 153 genera assigned to the following 12 families^[1]. The 200 known species are distributed among nine genera^[2]. i.e. *Galeodes*, *Galeodopsis*, *Galeodumus*, *Gluviema*, *Othoes*, *Paragaleodes*, *Paragaleodiscus*, *Roeweriscus* and *Zombis*. Galeodids are distinguished from other members of the order Solifugae by the presence of fine microsetae on the tarsal claws of legs 2nd through 4th^[3]. This vestiture of microsetae does not occur on any other group of Solifuges^[4].

The sites were chosen based on the high percentage of arid/semi-arid lands and reflect as many different habitats in Alirajpur. A survey carried out to improve our understanding of the diversity and distribution of Solifugae in district Alirajpur. Members of the order Solifugae are poorly known order of specialized, mostly nocturnal, cursorial hunting arachnids notable for their massively powerful two-segmented chelicerae, voracious appetite, and tremendous speed^[5]. The present status of the Solifugae is poorly known. This family remained unreported in Madhya Pradesh. We provide a description of family Galeodidae, which is a first record of Alirajpur in India after independence.

2. Materials and Methods

The Solifugae (Family Galeodidae) were collected from the rural area of the district Alirajpur (22°18'19"N 74°24'9"E), It lies in the Malwa region of Madhya Pradesh, near the border with Gujarat and Maharashtra. Alirajpur's topography is predominantly hilly with semiarid climate. Total 35 specimens of Solifugae were collected from Alirajpur in May 2013. All were collected during day by turning stones and pitfall traps. The specimens were studied in the Research laboratory of Zoology department, Holkar Science College, Indore. All the specimens were kept in separate plastic bottles having soil bedding from the same region.

3. Study area

The sites were chosen based on the high percentage of arid/semi-arid lands and reflect as many different habitats in Alirajpur (M.P.).

4. Identification of specimens

During this study specimens identified through identification keys. Since the Solifugae collection was largely unidentified, authoritatively determined material was not available for

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comparison. Wharton, (1981) and Punzo, (1998) [8, 5] have provided keys to families and family-level identification is generally not difficult except for some of the smaller immature. Identification to genus and to species is fraught with difficulties because the only available keys that cover Kenya

are those by Roewer, (1934) [6], for the world fauna. Males were identified by the presence of a pair of the flagellum (figure 1-B) on the rostrum and females were identified by the development of the genital opening. The description was made according to Stoliczka, (1869) [7].

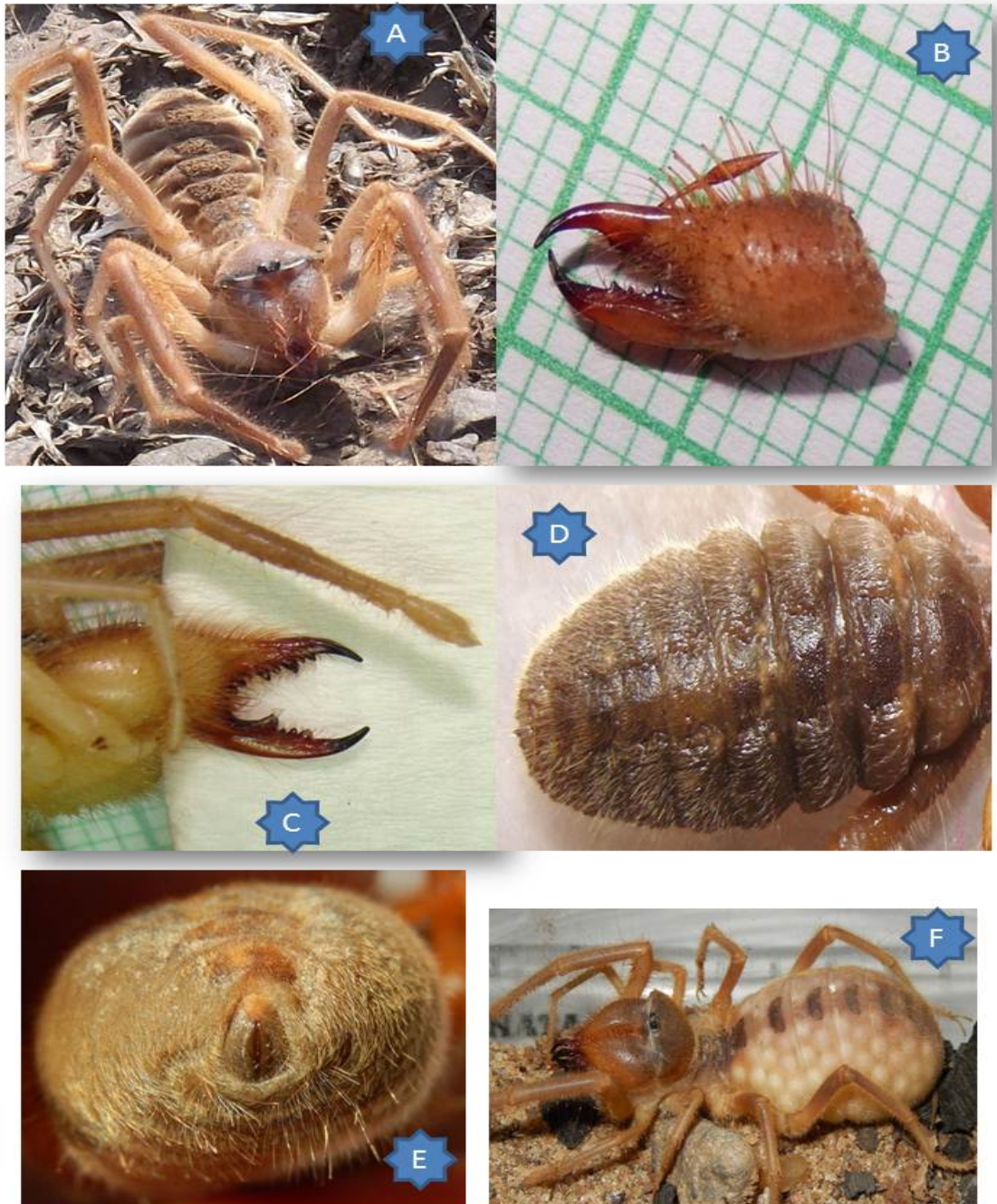


Fig 1: Morphological characters of identification of family Galeodidae.

- A. Adult Male of family Galeodidae.
- B. Flagellum of male (family Galeodidae).
- C. Multidentate Chelicerae of female.
- D. Dorsal opisthosomal tergite.
- E. Adult female of family Galeodidae.



Fig 2: Presence of fine microsetae on the tarsal claws of legs.

1. Microsetae on the tarsal claws of legs 2nd through 4th.
2. Hairy claws on tarsal of 2nd leg.
3. Hairy claws on tarsal of 3rd leg.
4. Tarsal segmentation of 4th leg.

5. Description of specimens

Anal somite: Flattened (figure 1-D)

Anus: terminal (figure 1-E)

Tarsal segmentation on in legs: 1-2-2-3 (figure 2(4))

Leg 2nd to 4th tarsus: (figure 2(1))

Chelicerae: Multidentate (figure 1-C)

Flagellum (Male): paraxially movable (figure 1-B)

6. Remarks

Dead Solifugae were fixed in 70% alcohol for identification and photography.

7. Results and Discussion

Biological communities vary in the number of species they contain and knowledge of this number is important in understanding the structure of the community. One objective of this study is to determine whether Alirajpur district is an important ground for the Indian Solifugae family. A total of 05 sightings of Galeodidae was made at study sites from the dry region of Alirajpur. At all study sites the specimens were always observed under stones. The specimens showed signs of aggressive behavior and tried to hide beneath the stone. Our observation clearly emphasizes that Galeodidae family is quite well distributed at the study site and activities during summer season.

8. References

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