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## NOTES ON SOME COLLEMBOLA (APTERYGOTA : INSECTA) FROM RAJASTHAN

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### INTRODUCTION

Many workers *viz.*, Baijal (1955), Choudhuri (1963), Carpenter (1924), Hazra (1995), Imms (1912), Mitra (1967, 1973), Prabhoo (1971), Salmon (1957) and Yosii (1966) have studied the Collembolan fauna from different states of India. However, the studies on Collembolan fauna of Rajasthan are very scanty. The present study deals with six species of Collembola namely *Cyphoderus javanus* Börner, 1906, *Cryptopygus thermophilus* (Axelson, 1900), *Isotomodes dagamae* Prabhoo, 1971, *Xenylla obscura* Imms, 1912, *Hypogastrura indovaria* Salmon, 1970 and *Entomobrya* sp. All these species are recorded for the first time from Rajasthan, India.

Present communication is based on a collection of Collembola made in the project of faunal diversity (funded by the Ministry of Environment & Forests, New Delhi) during the last two years from the following three districts of Rajasthan namely — Jodhpur, Sriganganagar and Jalore. It is noteworthy that this contribution is the first consolidated record of this group of insects from the State of Rajasthan.

Order COLLEMBOLA

Suborder ARTHROPLEONA

### Key to the Superfamilies of ARTHROPLEONA

- First thoracic segment dorsally distinct and with dorsal setae .....  
..... PODUROIDEA; Womersley, 1933
- First thoracic segment without dorsal setae and frequently more or less reduced or hidden dorsally by mesothoracic segment ..... ENTOMOBRYOIDEA; Womersley, 1933

**Key to the Families of PODUROIDEA**

1. Pseudocelli present, at least on antennal base or dorsum of fifth abdominal segment. ....  
..... ONYCHIURIDAE, Gervais, 1841
2. Pseudocelli absent. .... HYPOGASTRURIDAE, Bourlet, 1839

**Key to the Families of ENTOMOBRYOIDEA**

1. Hind coxae usually with trochanteral organ. Abdomen IV appreciably longer than abdomen III. Scales present or absent. Furcula well developed. ....  
..... ENTOMOBRYIDAE, Tomosvary, 1882
2. Hind coxae without trochanteral organ. Abdomen III and IV usually subequal; the abdomen III never more than one and half times as long as the abdomen III, the other posterior abdominal segments often fused. Scales usually not present .....  
..... ISOTOMIDAE, Börner, 1913

**Key to the Subfamilies of ENTOMOBRYIDAE**

1. Dentes dorsally crenulated and curving upwards basally in the line with manubrium .....  
..... ENTOMOBRYINAE, Schaffer, 1896
- Dentes not crenulated, straight and usually forming a basal angle with manubrium ..... 2
2. Serrated or coarsely ciliated dental spine is absent ..... 3
- Serrated or coarsely ciliated dental spine present on the basal portion of the dentes only ..  
..... TOMOCERINAE, Schaffer, 1896
3. Eyes and pigment absent; dentes with large dorsal scale without apical lobe .....  
..... CYPHODERINAE, Börner, 1913
- Eyes and pigment present; dentes without dorsal scale and with apical lobe .....  
..... PARONELLINAE Börner, 1913

**Family HYPOGASTRURIDAE**

This family represented by two genera and two species from Rajasthan.

**I. Genus *Xenylla* Tullberg, 1869****1. *Xenylla obscura* Imms, 1912**

1912. *Xenylla obscura* Imms, *Proc. zool. Soc. London*, 80-125.

1970. *Xenylla obscura* Salmon, *Rev. Soc. N. Z. Biol. Sci.*, 12(13) : 145-152.

*Material examined* : Srivijayanagar, Sriganganagar dist., 1 ex., 20.ix.2000, A. Bhattacharyya; Bhinmolgarh, Jalore dist., 4 exs., 7.xii.2000, A. Bhattacharyya; Jaliwada, Jodhpur dist., 64 exs.,

18.i.2001, A. Bhattacharyya; Gardali, Jalore dist., 8 exs., 8.xii.2000, A. Bhattacharyya; Ghaseri, Jalore dist., 8 exs., 6.xii.2000, A. Bhattacharyya; Dhanpara, Jalore dist., 2 exs., 8.xii.2000, A. Bhattacharyya; Kapeda, Bilara, Jodhpur dist., 35 exs., 15.i.2001, A. Bhattacharyya; Bhinmal Guest House, Jaore dist., 2 exs., 7.xii.2000, A. Bhattacharyya; Falna, Sanalone, Jalore dist., 8 exs., 7.xii.2000, A. Bhattacharyya.

*Diagnostic characters* : Body length upto 1.4 mm; elongate in shape. Colour indigo-blue, segmental margins and ventral side pale. Ant. Ratio as 10 : 12 : 12 : 14. P.A.O. absent. Unguis carinate. Without lateral teeth, but 1, 1, 1 inner tooth near the apex. Unguiculus absent. Ventral tube with 4 + 4 setae. Mucro short, obtuse and blunt on apex, with a narrow rounded lamella, which is often very obscure.

*Distribution* : INDIA : Rajasthan, Manipur, Nagaland, Sikkim, Maharashtra (Mumbai).

*Remarks* : The occurrence of this species in different parts of Rajasthan showed its wide distributional range in Rajasthan.

## II. Genus *Hypogastrura* Bourlet, 1839

### 2. *Hypogastrura indovaria* Salmon, 1970

1970. *Hypogastrura indovaria* Salmon, *Trans. Biol. Sci.*, 12(13) : 149.

*Material examined* : Gardali, Jalore dist., 8 exs., 8.xii.2000, A. Bhattacharyya.

*Diagnostic characters* : Body length upto 0.8 mm. brownish black granular, ocelli on black fields. Sparse to heavy clothing of short and long curved simple setae. Antennae shorter than head. 8 + 8 eye. P.A.O. very irregular consists of 4–12 indistinct disconnected lobes with or without central boss. Abd. VI with two long anal spines on papillae. Tenent hairs never clavate. Claw and unguiculus finely granulate; mucrones finely granulate and spoon-shaped with two distinct lamellae.

*Distribution* : INDIA : Rajasthan, Sikkim.

*Remarks* : Occurrence of this species in Western India in Rajasthan only after its occurrence in Manipur and Sikkim of North East India, is interesting.

## Family ENTOMOBRYIDAE

### Subfamily CYPHODERINAE Börner, 1913

## III. Genus *Cyphoderus* Nicolet, 1842

### 3. *Cyphoderus javanus* Börner, 1906

1906. *Cyphoderus javanus* Börner, *Mitt. Nat. Hist. Mus. Hamburg.*, 23 : 180

1966. *Cyphoderus javanus* Yosii, *Kyoto Univ. Expt. Karakoram & Hindukush*, 8 : 381

1971. *Cyphoderus javanus* Prabhoo, *Oriental Ins.*, 5(1) : 38.

*Material examined* : Paota, Jodhpur dist., 2 exs., 11.xi.2000, A. Bhattacharyya; Bhagwansar, Sriganganagar dist., 2 exs., 11.xi.2001, A. Bhattacharyya; Khandadeol, Jalore dist., 2 exs., 7.xii.2001, A. Bhattacharyya.

*Diagnostic characters* : White without trace of pigment. Eyes lacking elongated mucro with a well-developed lamellated anteapical tooth. Large fringed scale on dens; unguis and unguiculus both have enlarged wing like teeth.

*Distribution* : INDIA : Rajasthan, Manipur, Sikkim, West Bengal, Kerala.

*Remarks* : So far this species was recorded from Northeast India, Sikkim Himalaya, South India, occurrence of this species from the desert of Rajasthan proves its wide distributional range in varied habitat.

#### Subfamily ENTOMOBRYINAE Schaffer, 1896

#### IV. Genus *Entomobrya* Rondani, 1861

##### 4. *Entomobrya* sp.

*Material examined* : AFRI-Nursery, Jodhpur dist., 2 exs., 12.xi.2000, A. Bhattacharyya.

This genus includes scaleless Entomobryinae with 6 + 6 eyes, the fourth abdominal segment 3 or more times as long as the third and greatly enlarged setae on the body. The unguis is quite consistent, having 1 outer, 2 lateral, and 4 inner teeth; the unguiculus is always acuminate and externally smooth or very finely ciliate.

#### Family ISOTOMIDAE Börner, 1913

Head prognathus, tracheae absent. Antennae inserted in front half of head. P.A.O. usually present; always simple. Mucrones short.

#### V. Genus *Cryptopygus* Willem, 1901

##### 5. *Cryptopygus thermophilus* (Axelson, 1900)

1947. *Isotoma thermophilus* Stach, *Med. Soc. Fauna Flora Fenn.*, **26** : 113

*Material examined* : Khandadeol, Jalore dist., 39 exs., 7.xii.2001, A. Bhattacharyya; Bhopalgarh, Jodhpur dist., 4 exs., 20.ix.2000, A. Bhattacharyya; CSF-Nursery Bhagwansar, Sriganganagar dist., 20. exs., 11.ii.2001, A. Bhattacharyya; Godane ki dhani, Bhopalgarh, Jodhpur dist., 8 exs., 20.ix.2000, A. Bhattacharyya.

*Diagnostic characters* : Generally dark back ground with numerous pale spots. Fourth antennal segment without clearly distinguishable blunt setae. P.A.O. about 3 times as long as the

nearest eye. Eye 8 + 8 or 7 + 7. Unguis without lateral teeth but with a clear inner tooth; unguiculus tooth less. Ventral tube with 2 basal posterior setae and 4 + 4 distal anterior setae. Manubrium 1/2–3/5 as long as dens, with 1 + 1 ventral setae. Dens with numerous dorsal crenulations, 6 + 6 dorsal setae, and about 20 ventral setae. Maximum length 1.2 mm.

*Distribution* : INDIA : Rajasthan, Manipur; NORTH AMERICA, JAPAN.

*Remarks* : Recorded for the first time from Rajasthan.

## VI. Genus *Isotomodes* Linnaniemi, 1907

### 6. *Isotomodes dagamae* Prabhoo, 1971

1971. *Isotomodes dagamae* Prabhoo, *Oriental Insects*, 5(1) : 1-46.

*Material examined* : Khandadeol, Jalore dist., 28 exs., 7.xii.2000, A. Bhattacharyya.

*Diagnostic characters* : Upto 1.6 mm. long, white, slender species. Clothed with plain setae arranged in transverse rows. Antenna/head as 3/2; antennal ratio as 12 : 20 : 25 : 35; ant. IV with 21 blunt sense rods; ant. III without the usual sense organ. P.A.O. with eight setae posterior to it. Claw without teeth. Unguiculus half as long as the claw. Tenent hair absent. Furcula segments as 25 : 25 : 8; manubrium without seate on the ventral side and dorsally with 9 + 9 setae; mucro with two unequal teeth.

*Distribution* : INDIA : Kerala, Rajasthan.

*Remarks* : First recorded from Rajasthan.

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