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## NEW RECORDS OF ORIBATID MITES (ACARI) FROM BANGLADESH

A. K. SANYAL

*Zoological Survey of India, M-Block, New Alipore, Kolkata-700 053*

### INTRODUCTION

More than 4000 species of oribatid mites are known from different countries of the world. But till recently these mites were not known from Bangladesh. Only 3 species under 3 genera are so far known from the country (Sanyal *et al.*, 2004 and Gupta *et al.*, 2004). The present author while visiting Bangladesh in December, 2003 collected few soil and litter samples from Chittagong and Pabna districts and extracted oribatid specimens from the samples. The present paper is based upon the specimens collected which includes 11 species belonging to 9 genera and 9 families. Of these, 2 species under 2 genera are already known from Bangladesh.

The specimens reported here are deposited in the National Zoological Collection in Zoological Survey of India, Kolkata.

### SYSTEMATIC ACCOUNT

#### Key to the families of ORIBATID mites from Bangladesh

- 1(6) Anogenital region of macropyline type; ventral plate absent; tibia and genu of similar length and shape.
- 2(3) Body dichoid *i.e.* articulation between legs II and III; preanal plate present.....  
..... LOHMANIIDAE
- 3(2) Body holoid *i.e.* the body regions rigidly coalesced; preanal plate absent.
- 4(5) Two pairs of setae on epimere 3; genital setae 16–20 pairs; adanal setae two pairs .....  
..... TRHYPOCHTHONIIDAE
- 5(4) Three pairs of setae on epimere 3; 4–12 pairs of genital setae; adanal setae three pairs .....  
..... MALACONOTHRIDAE
- 6(1) Anogenital region of brachypyline type; ventral plate present; tibia and genu of different length and shape.

- 7(10) Notogaster pycnonotic *i.e.* ototoxic organs absent; usually pteromorphae absent.
- 8(9) Prodorsum with lamellae; dorsosejugal suture absent ..... TECTOCEPHEDAE
- 9(8) Prodorsum without true lamellae; dorsosejugal suture present ..... OPPIIDAE
- 10(7) Notogaster poronotic *i.e.* areae porosae, sacculi or pori present; pteromorphae usually present.
- 11(12) Pteromorphae movable, articulate or semicircular; prodorsum without true projecting lamellae; some chitinous lines on the prodorsum ..... GALUMNIDAE
- 12(11) Pteromorphae immovable but never articulate sometimes absent.
- 13(14) Prodorsum with tatorium; usually six pairs of genital setae (exceptionally five or four pairs); lamellae broad, sometimes synlamella type ..... AUSTRACHTERIIDAE
- 14(13) Prodorsum without tatorium; usually 3–5 pairs of genital setae (exceptionally six pairs); lamellae not broad.
- 15(16) Notogaster with true areae porosae; pteromorphae movable; 5–6 pairs of genital setae present ..... XYLOBATIDAE
- 16(15) Notogaster with sacculi; pteromorphae immovable or absent; usually 4, rarely 3, exceptionally 5 or 1 pair of genital setae present ..... SCHELOBATIDAE

### 1. Family LOHMANIIDAE Berlese, 1916

#### Key to the genera of LOHMANIIDAE

- 1(2) Ano-adanal setae five pairs ..... *Haplacarus* Wallwork, 1962
- 2(1) Ano-adanal setae four pairs ..... *Javacarus* Balogh, 1961

#### 1. Genus *Haplacarus* Wallwork, 1962

##### 1. *Haplacarus foliatus bengalensis* Bhattacharya, Bhaduri & Raychaudhuri

1974. *Haplacarus foliatus bengalensis* Bhattacharya, Bhaduri and Raychaudhuri, *Oriental Insects.*, 8(2) : 281.

*Diagnosis* : Setae on prodorsum smooth; sensillus pectinate with 10–12 branches; notogastral setae 10 pairs; foliate, usually smooth; notogaster with 10 transverse bands; an excrescence in the posterior margin of preanal plate; genital setae 10 pairs.

*Material examined* : Bangladesh : 2 ♀, Chittagong, Maheshkhali, near salt field, 24.xii.2003, ex. soil from grassland, coll. A. K. Sanyal.

*Distribution* : Bangladesh (Chittagong). *Elsewhere* : India.

#### 2. Genus *Javacarus* Balogh, 1962

##### 2. *Javacarus foliatus* Hammer

1972. *Javacarus kuhneli* Bal. var. *foliatus* Hammer, *Biol. Skr. Dan. Vid. Selsk.*, 19(3) : 1.

1984. *Javacarus foliatus* n. stat., Sarkar and Subias, *Oriental Insects.*, 18 : 25.

**Diagnosis** : Large-sized tubercles on prodorsum; prodorsal setae long, lanceolate; sensillus with 10 secondary branches besides few very fine ones distally on posterior border; notogastral setae long, foliate with mid rib. Undulating chitinized keels along the sides of dorsum; ventral side with irregular pattern of sculpture; 10 pairs of genital setae.

**Material examined** : Bangladesh : 1 ♀, Chittagong, Maheshkhali, near salt field, 24.xii.2003, ex. soil from grassland, coll. A. K. Sanyal.

**Distribution** : Bangladesh (Chittagong). *Elsewhere* : India, Tahiti.

2. Family TRHYPOCHTHONIIDAE Willmann, 1931

3. Genus *Archegozetes* Grandjean, 1931

3. *Archegozetes tuberculatus* Sarkar

1985. *Archegozetes tuberculatus* Sarkar, *Uttar Pradesh J. Zool.*, 5(1) : 83.

**Diagnosis** : Prodorsal setae long, thick, unilaterally barbed; sensillus long, outer margin thinly barbed; no exobothridial setae; transverse chitinous thickening in front of interlamellar setae and close to lateral margins of prodorsum; notogastral setae 15 pairs, unilaterally barbed; setae  $f_1$  lacking; posterior end of body with characteristic blunt tubercle; genital setae 7 pairs, thin, simple, moderately long; anal setae 2 pairs, thin, long; adanal setae 3 pairs, stout, longer than anal setae; aggenital setae absent; epimeral setae  $3b$  thrice as long as other setae, epimeral setal formula 3 : 1 : 3 : 3; legs monodactylous.

**Material examined** : Bangladesh : 1 ♀, Pabna, Dogachhi village, 29.xii.2003, ex. soil from fallow land, coll. Sucheta Sanyal.

**Distribution** : Bangladesh (Pabna). *Elsewhere* : India.

3. Family MALACONOTHRIDAE Berlese, 1916

4. Genus *Malaconothrus* Berlese, 1904

4. *Malaconothrus rostopilosus* Saha & Sanyal

1996. *Malaconothrus rostopilosus* Saha and Sanyal, *Entomon*, 21(1) : 105.

**Diagnosis** : Rostral setae pilose, clavate-shaped; lamellar and interlamellar setae thin, smooth, tip pointed; light polygonal reticular markings and punctations present in area between lamellar ridges; notogastral setae 15 pairs, thin, smooth, long, of different sizes; punctate double-lined oval area near fissure *ip*, genital setae 3 pairs, an undulating chitinous ridge just above anterior part of genital plate; no anal setae; 3 pairs of smooth adanal setae; legs monodactylous.

**Material examined** : Bangladesh : 2 ♀ ♀, Chittagong, Rangamati, hill top, 26.xii.2003, ex. soil from field with wild vegetation, coll. A. K. Sanyal.

**Distribution** : Bangladesh (Chittagong). *Elsewhere* : India.

## 4. Family TECTOCEPHEIDAE Grandjean, 1954

5. Genus *Tectocephus* Berlese, 19135. *Tectocephus velatus* (Michael)

1888. *Tectocephus velatus* (Michael), *Ray. Soc.*, 65.

*Diagnosis* : Rostrum trifid; lamellae large detached blades, lying nearly horizontal, extend beyond the lateral margin of the cephalothorax, median portion broad, cups narrow or thick, almost reaching the tip of rostrum; rostral and lamellar setae curved inward and barbed unilaterally; interlamellar setae minute, smooth; sensillus long with slender stalk, head licheniform; dorsosejugal suture interrupted; paired *iad* large.

*Material examined* : Bangladesh : 12 ♀ ♀, Chittagong, Maheshkhali, near salt field, 24.xii.2003, ex. soil from grassland, coll. A. K. Sanyal; Chittagong, Rangamati, hill top, 26.xii.2003, ex. soil from field with wild vegetation, coll. A. K. Sanyal.

*Distribution* : Bangladesh (Chittagong). *Elsewhere* : Africa, Central Asia, Easter Island, Europe, Fiji, India, Indonesia, Japan, Jordan, New Zealand, North America, Pakistan, South America, Spitsbergen, Tonga Island, Turkey.

## 5. Family OPPIIDAE Grandjean, 1954

6. Genus *Oppia* Koch, 18366. *Oppia yodai* Aoki

1965. *Oppia yodai* Aoki, *Nat Life Southeast Asia*, 4 : 169.

*Diagnosis* : Finely barbed prodorsal setae; lamellar setae twice as long as their mutual distance; interlamellar setae directed backwards; sensillus spindle-shaped beset with fine bristles; one pointed protrusion behind the bothridium; 5 pairs of notogastral setae.

*Material examined* : Bangladesh : 1 ♀, Chittagong, Meheshkhali, near salt field, 24.xii.2003, ex. soil from grassland, coll. A. K. Sanyal.

*Distribution* : Bangladesh (Chittagong). *Elsewhere* : India, Japan.

## 6. Family XYLOBATIDAE Balogh &amp; Balogh, 1984

7. Genus *Xylobates* Jacot, 19297. *Xylobates capucinus* (Berlese)

1908. *Protoribates capucinus* Berlese, *Redia*, 5 : 2.

1989. *Xylobates capucinus* Norton and Kethly, *Redia*, 62(2) : 428.

**Diagnosis** : Rostral setae small, fine, smooth; lamella broad in the middle, tip pointed; lamellar setae smaller than rostral setae, smooth; interlamellar setae long, fine, barbed unilaterally, sensillus with long stalk with swollen head barbed outwardly; 11 pairs of minute notogastral setae.

**Material examined** : Bangladesh : 4 ♀ ♀, Chittagong, Maheshkhali, near salt field, 24.xii.2003, ex. soil from grassland, coll. A.K. Sanyal; Chittagong, Rangamati, hill top, 26.xii.2003, ex. soil from field with wild vegetation, coll. Ayan Sanyal; 1 ♀, Pabna, Dogachhi village, 29.xii.2003, ex. soil from fallow land, coll. A.K. Sanyal.

**Distribution** : Bangladesh (Chittagong, Pabna). *Elsewhere* : Bulgaria, India, Indonesia, Italy, New Zealand, North America, Pakistan, Sahara, Samoa, South America, Spain, Tonga Tapu Is., Turkey, U.S.S.R.

## 7. Family SCHELLORIBATIDAE Grandjean, 1953

### 8. Genus *Scheloribates* Berlese, 1908

#### Key to the species of *Scheloribates*

- 1(2) Hysterosoma as broad as long; sensillus with short stalk and disc-shaped head .....  
 ..... *albialatus* Hammer, 1961
- 2(1) Hysterosoma longer than broad; sensillus with lanceolate head .....  
 ..... *thermophilus* Hammer, 1961

#### 8. *Scheloribates albialatus* Hammer

1961. *Scheloribates albialatus* Hammer, *Biol. Skr. Dan. Vid. Selsk.*, 13(1) : 94.

**Diagnosis** : Rostral and lamellar setae barbed; interlamellar setae smooth; sensillus with short, round, disc-shaped head set with fine scales; no setae on notogaster; chitinous pores on notogaster; genital setae 4 pairs.

**Material examined** : Bangladesh : 40 ♀ ♀, Chittagong, Maheshkhali, near salt field, 24.xii.2003, ex. soil from grassland, coll. A. K. Sanyal; 22 ♀ ♀, Chittagong, Rangamati, hill top, 26.xii.2003, ex. soil from field with wild vegetation, coll. A. K. Sanyal.

**Distribution** : Bangladesh (Chittagong). *Elsewhere* : India, Peru.

#### 9. *Scheloribates thermophilus* Hammer

1961. *Scheloribates thermophilus* Hammer, *Biol. Skr. Dan. Vid. Selsk.*, 13(1) : 95.

**Diagnosis** : Rostral setae about twice as long as their mutual distance, barbed; lamellar setae short, thick, slightly longer than their mutual distance, barbed; interlamellar setae thick, barbed; sensillus slender with lanceolate head; notogastral setae minute; legs tridactylous.

*Material examined* : Bangladesh : 1 ♀, Chittagong, Cox's Bazar, Himchari, 24.xii.2003, ex. soil under banana plant, coll. A. K. Sanyal; 2 ♀ ♀, Chittagong, Maheshkhali, beside Adinath temple, 24.xii.2003, ex. soil under banana plant, coll. A. K. Sanyal; 6 ♀ ♀, near salt field, 24.xii.2003, ex. soil from grassland, coll. A. K. Sanyal.

*Distribution* : Bangladesh (Chittagong). *Elsewhere* : Fiji, India, Peru.

## 8. Family AUSTRACHTERIIDAE Luxton, 1985

### 9. Genus *Lamellobates* Hammer, 1958

#### 10. *Lamellobates palustris* Hammer

1958. *Lamellobates palustris* Hammer, *Biol. Skr. Dan. Vid. Selsk.*, 10(1) : 100.

*Diagnosis* : Inner cuspides of lamellae rounded, outer lamellar cuspides tapering into a short and sharp point; lamellar setae equally very thick throughout, rough; interlamellar setae long, rough; sensillus club-shaped, tip pointed, beset with short setae; notogastral setae 9 pairs; genital setae 6 pairs.

*Material examined* : Bangladesh : 6 ♀ ♀, Chittagong, Maheshkhali, near salt field, 24.xii.2003, ex. soil from grass field, coll. A. K. Sanyal; 2 ♀ ♀, Chittagong, Rangamati, hill top, 26.xii.2003, ex. soil from field with wild vegetation, coll. Ayan Sanyal.

*Distribution* : Bangladesh (Chittagong). *Elsewhere* : Argentina, Fiji, India, Indonesia, New Zealand, Pakistan, Seychelles, Thailand, Tonga Tapu Island.

*Remarks* : The species is already known from Dhaka, Bangladesh (Gupta *et al.*, 2004).

## 9. Family GALUMNIDAE Jacot, 1925

### 10. Genus *Galumna* von Heyden, 1826

#### 11. *Galumna* sp.

*Material examined* : Bangladesh : 1 ♀, Chittagong, Maheshkhali, beside Adinath temple, 24.xii.2003, ex. soil under banana plant, coll. Sucheta Sanyal.

*Remarks* : The genus was earlier recorded from Bangladesh (Dhaka) by Sanyal *et al.*, (2004). The specimen could not be identified upto species level as the specimen was not in good condition.

## SUMMARY

A total of 11 species of soil inhabiting oribatid mites belonging to 9 genera under 9 families collected from Chittagong and Pabna districts in Bangladesh are reported in the paper. Of the 11 species 10 are reported here for the first time from Bangladesh. One species *viz.*, *L. palustris* and

the genus *Galumna* were earlier recorded from Bangladesh by Sanyal *et al.*, (2004) and Gupta *et al.*, (2004) respectively. Keys to identification of families, genera and species reported in the paper, diagnostic features, collection data and distribution of the species have been incorporated in the paper.

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