



Sixteen New Records of Soil Oribatid Mites (Acari: Oribatida) from Maharashtra, India

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ABSTRACT: The present work is based on a collection of soil oribatid mites from some selected habitat of six districts (Akola, Jalgaon, Pune, Nashik, Ahmednagar, Aurangabad) of four Region like Uttar Maharashtra, Western Maharashtra, Marathwada and Amravati region of the Maharashtra state. 16 species under 14 genera belonging to 12 families of soil oribatid mites were found to be new records to the state from the present investigation with 4 new records to India.

Key words: Oribatid mites, Maharashtra, Arthropodan groups, oribatid fauna, New records

INTRODUCTION

The Oribatid mites are one of the richest soil Arthropodan groups both as to the number of species and individuals (Balogh, 1972). Although not the equal of insects, mites do rank high in species richness. But the mites are very poorly represented in ecological, ethological and evolutionary studies (Walter and Proctor, 1999).

When compared the state Maharashtra is so far known to comprise only 4 Oribatid species belonging to 3 genera and 2 families as against 2186 species belonging to 643 genera & 207 families reported from India. Narsapur (1983) made the first record of Oribatid mite from Maharashtra from the soils of the state. Later Sanyal (1984) studied soil mites of Maharashtra and published one paper containing description of two new species. No work has been done on soil oribatid mites after that.

Being a part of the sectional survey programme we conducted our survey tour in four Region like Uttar Maharashtra, Western Maharashtra, Marathwada and

Amravati region of the Maharashtra state and the present paper is based on a Collection of soil oribatid mites from the these regions of the state Maharashtra. An account of 16 species under 14 genera belonging to 12 families is provided here with the details of collection. The oribatid fauna of this region is practically unexplored and the present account will form a basis for future research on this group from the area. As this region is totally untouched all the species found are supposed to be new records from the state among which 4 are new records to India.

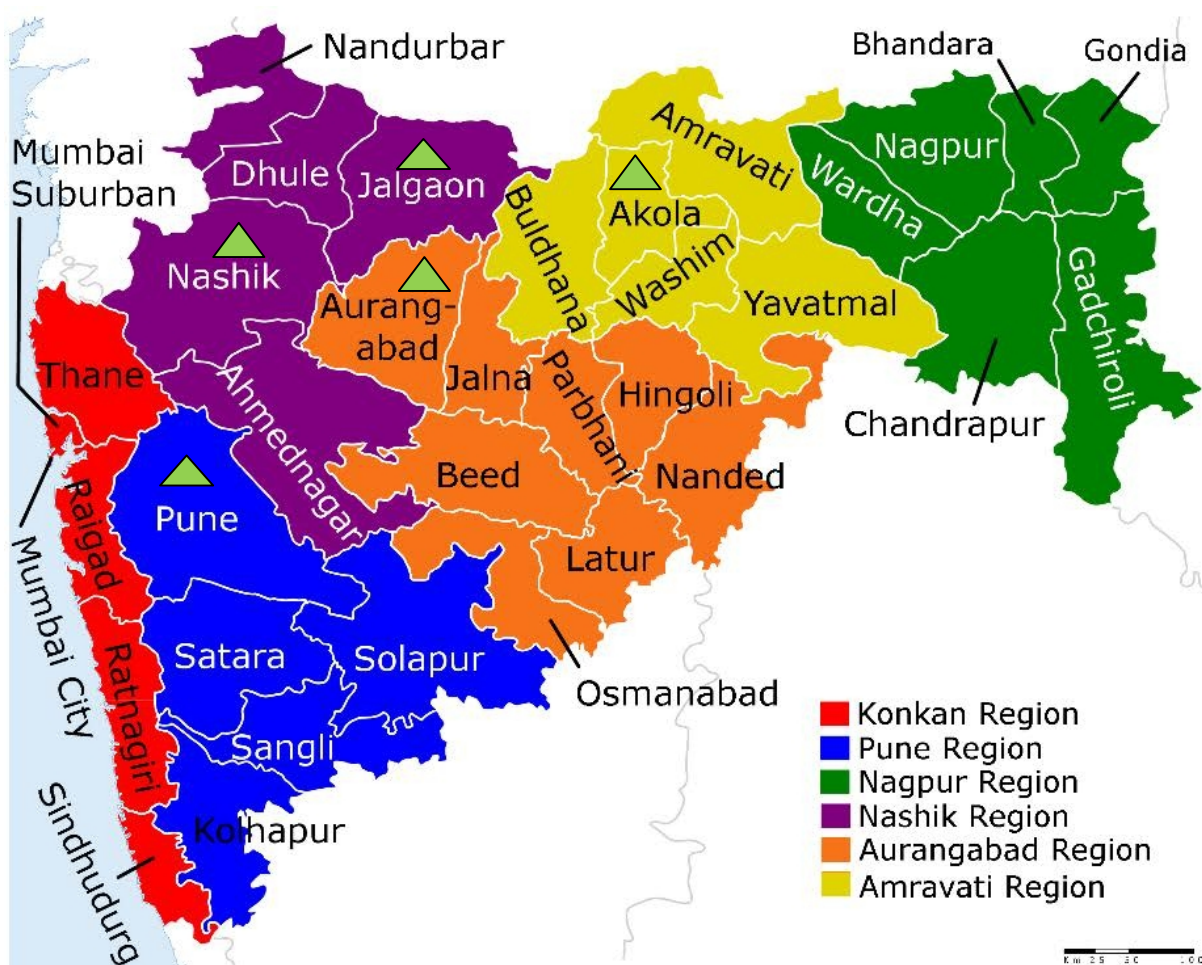
MATERIALS AND METHODS

For taxonomic studies of oribatid mites, litter, soil and humus samples from all possible habitats from the six (Akola, Jalgaon, Pune, Nashik, Ahmednagar, Aurangabad) districts of Maharashtra were collected. The samples collected by shovel from upper 10 cm soil profile were kept in polythene bags. The samples were extracted by using modified Tullgren funnels and extracted mite specimens were collected in glass tubes containing 70% alcohol.

The body of most of the oribatid mite is heavily sclerotized and opaque. The extracted material were made ready for taxonomic study following the usual procedure of keeping the specimen in solution of 90% alcohol and lactic acid (v/v) as advocated by Balogh (1965). For microscopic observations, Balogh's (1965) method of temporary mounting in lactic acid was followed.

After necessary microscopic observations the specimen was transferred in small glass vials containing 90% alcohol. The vials were then properly labeled and stored. The specimens were studied under *Nikon Eclipse, 50i* microscope. All the studied specimens are deposited under National Zoological Collection of Zoological Survey of India, HQ, Kolkata.

Study Area



RESULTS

Species newly recorded from Maharashtra:

1. *Hoplophthiracarus costai* MacFarlane & Sheals
2. *Notophthiracarus (Calyptophthiracarus) pavidus pavidus* (Berlese)
3. *Archezogetes longisetosus* Aoki
4. *Trimalaconothrus platyrhinus* Hammer
5. *Amerioppia* sp.
6. *Lasiobelba remota* Aoki
7. *Kokoppia* sp.
8. *Dolicheremaeus papuensis* Aoki
9. *Hypozetes laysanensis* Aoki
10. *Chaunoproctus minor* (Balogh)
11. *Schelorbates albialatus* Hammer
12. *Schelorbates giganteus* Hammer
13. *Pelorbates longisetosus* (Willman)
14. *Unguizetes clavatus* Aoki
15. *Plesiodamaeus glaber* Mihelcic
16. *Litholestes altitudinus* Grandjean

Systematic Account:

1. Family: PHTHIRACARIDAE

1. Genus: *Hoplophthiracarus* Jacot, 1933

1933. *Hoplophthiracarus* Jacot, *Journ. El. Mitch. Sci. Soc.*, **48**:239.

1. *Hoplophthiracarus costai* MacFarlane & Sheals, 1965

1965. *Hoplophthiracarus costai* MacFarlane & Sheals, *Acarologia*, **7**(3):577-583.

Material Examined: 1M, Ellora Cave No. 34, Aurangabad, Maharashtra, 20.032349 & 75.175605, 15.ix.2012, from soil, coll. A. Chatterjee, 4849/17/ZSIHQ;

Distribution: India: Uttar Pradesh.

Remarks: This species is recorded here for the first time from Maharashtra.

2. *Notophthiracarus (Calyptophthiracarus) pavidus pavidus* (Berlese, 1913)

(=*Hoplophthiracarus cretensis* Mahunka, 1979)

1913. *Notophthiracarus (Calyptophthiracarus) pavidus pavidus* Berlese, *Redia*, **9**: 77-111.

1979. *Hoplophthiracarus cretensis* Mahunka, *Revue Suisse Zool.*, **86** (2): 558.

Material Examined: 1M, Ajanta Cave No. 16, Aurangabad, Maharashtra, 20.529747 & 75.7426, 14.ix.2012, from soil, coll. A. Chatterjee, 4850/17/ZSIHQ;

Remarks: This species is recorded here for the first time from India.

2. Family: LOHMANIIDAE

2. Genus: *Javacarus* Balogh 1961

1961. *Javacarus* Balogh, *Acta Zool. Acad. Sci. Hung.*, **7** (1 & 2): 31.

3. *Javacarus kuehnelti* Balogh

1961. *Javacarus* Balogh, *Acta Zool. Acad. Sci. Hung.*, **7**(1 & 2): 31.

Material Examined: 1M, Fulambri Vill., Aurangabad, Maharashtra, 20.088181 & 75.419357, 13.ix.2012, from Corn field soil, coll. A. Chatterjee, 4852/17/ZSIHQ; 1M, Daulatabad Fort, Aurangabad, Maharashtra, 19.9417 & 75.21217, 16.ix.2012, soil from Fort hill top, coll. A. Chatterjee, 4851/17/ZSIHQ.

Distribution: India: West Bengal (Birbhum), Maharashtra, Tripura.

3. Family MALACONOTHRIDAE

3. Genus: *Trimalaconothrus (Trimalaconothrus)*

Berlese

1916. *Trimalaconothrus (Trimalaconothrus)* Berlese, *Redia*, **12**: 289-338.

4. *Trimalaconothrus platyrhinus* Hammer, 1962

1962. *Trimalaconothrus platyrhinus* Hammer, *Biol. Skr. Dan. Vid. Selsk.*, **13**: 1-17.

Material examined: 1M, Sinhagad Fort, Pune, Maharashtra, 18.366304 & 73.755876, 10.xii.13, from soil, coll. D.N Adagale, 4957/17/ ZSIHQ.

Distribution: India: West Bengal.

Remarks: This species is a new record from Maharashtra.

4. Family: TRHYPOCHTHONIDAE

4. Genus: *Archezogetes* Grandjean, 1931

1931. *Archezogetes* Grandjean, *Bull. Mus. Hist. Nat. Paris*, **3** (2): 144.

5. *Archezogetes longisetosus* Aoki, 1965

1965. *Archezogetes longisetosus* Aoki, *Nat. Life Southeast Asia*, **4**: 147.

Material Examined: 1M, Gaigaon vill., Akola, Maharashtra, 20.725908 & 76.891552, 04.ix.2012, from Bean field soil, coll. S. Acharya, 4947/17/ ZSIHQ.

Distribution: India: West Bengal, Assam, Kerala, Tripura, Lakshadweep.

Remarks: This species first time recorded from Maharashtra.

5. Family: OPPIIDAE

5. Genus: **Amerioppia Hammer 1961**

1961. *Amerioppia* Hammer, *Biol. Skr.*, **13**(1): 55.

6. **Amerioppia sp.**

Material Examined: 1M, Trimbakeshwar, Nashik, Maharashtra, 19.929721 & 73.527921, 09.ix.2012, soil from Methi field, coll. S. Acharya, 4802/17 / ZSIHQ; 3M, Apangaon Vill., Ahmednagar, Maharashtra, 19.02635 & 74.71469, 11.09.2012, soil from Brinjal Field, coll. A. Chatterjee, 4803/17/ZSIHQ; 5M, Ajanta Cave No. 16, Aurangabad, Maharashtra, 20.52975 & 75.7426, 14.ix.2012, soil from Ornamental Plant, coll. A. Chatterjee, 4804/17 /ZSIHQ.

Remarks: This genus is recorded for the first time from Maharashtra.

6. Genus: **Lasiobelba Aoki, 1965**

1965. *Lasiobelba* Aoki, *Bull. Bio. Geo. Sco. Jap.*, **21**(1): 5.

7. **Lasiobelba remota Aoki, 1959**

1959. *Lasiobelba remota* Aoki, *Bull. Biogeogr. soc. Japan*, **21**:1-22.

Material Examined: 1M, Ellora Cave No. 34, Aurangabad, Maharashtra, 20.032349 & 75.175605, 15.ix.2012, soil from Ornamental Plant, coll. A. Chatterjee, 4853/17/ZSIHQ; 1M, Shinde Vill., Nashik, Maharashtra, 19.91194 & 73.902179, 9.ix.2012, from Chilli field soil, coll. . S. Acharya, 4854 /17/ZSIHQ; 13 M, Sinnor Vill., Nashik, Maharashtra, 19.85 & 74, 9.ix.2012, from Chilli field soil, coll. . S. Acharya, 4855/17/ZSIHQ; 16M, Sillod Vill., Aurangabad , Maharashtra, 19.90652 & 75.350115, 13.ix.2012, from Corn field soil, coll. A. Chatterjee, 4856/17/ZSIHQ; 2M, Panwari Vill., Manmad, Maharashtra, 20.2499 & 74.43586, 20.ix.2012, from Soil, coll. A. Chatterjee, 4857/17/ZSIHQ; 1M, Hibargaon Vill., Sangamner Khurd, Ahmednagar, Maharashtra, 19.09521 & 74.74959, 8.ix.2012, soil from Pomegrante garden, coll. S. Acharya, 4858/17/ZSIHQ.

Remarks: This species is first time recorded from India.

7. Genus: **Kokoppia Balogh, 1983**

1983. *Kokoppia* Balogh, *Acta Zool. Acad. Sci. Hung.*, **29**(4): 283-301.

8. **Kokoppia sp.**

Material Examined: 24M, Sinhagad Fort, Pune, Maharashtra, 18.366304 & 73.755876, 10.xii.13, from soil, coll. D.N Adagale, 4959/17/ZSIHQ.

Remarks: This genus is recorded for the first time from Maharashtra.

6. Family: OTOCEPHEIDAE

8. Genus: **Dolicheremaeus Jacot, 1938**

1938. *Dolicheremaeus* Jacot, *Florida Ent.*, **21**(4):51.

9. **Dolicheremaeus papuensis Aoki, 1967**

1967. *Dolicheremaeus papuensis* Aoki, *Bull. Nat. Sci. Mus. Tokyo* **10**(3): 308.

Material Examined: 24M, Sinhagad Fort, Pune, Maharashtra, 18.366304 & 73.755876, 10.xii.13, from soil, coll. D. N Adagale, 4956/17/ ZSIHQ.

Distribution: India: Uttarakhand.

Remarks: This species is recorded for the first time from Maharashtra.

7. Family: AUSTRACHTERIIDAE

9. Genus: **Hypozetes Balogh, 1959**

1959. *Hypozetes* Balogh, *Acta. Zool. Hung.*, **5**: 241-253

10. **Hypozetes laysanensis Aoki, 1964**

1964. *Hypozetes laysanensis* Aoki, *Pacific Insects*, **7**: 301-308.

Material Examined: 24M, Sinhagad Fort, Pune, Maharashtra 18.366304 & 73.755876, 10.xii.13, from soil, coll. D.N Adagale, 4949/17/ ZSIHQ.

Distribution: India: West Bengal, Tripura, Mizoram.

Remarks: This species is recorded for the first time from Maharashtra

8. Family: CHAUNOPROCTIDAE

10. Genus: **Chaunoproctus Pearce**

1906. *Chaunoproctus* Pearce, *Journ.*

Roy.Micr.Soc.,271.

11. **Chaunoproctus minor (Balogh)**

1958. *Caloppia minor* Balogh, *Rev.Zool.Bot.Afr.*, **58**(1-4):11.

Material Examined: 24M, Sinhagad Fort, Pune, Maharashtra, 18.366304 & 73.755876, 10.xii.13, from soil, coll. D.N Adagale, 4958/17/ZSIHQ.

Distribution: India: West Bengal, Kerala.

Remarks: This species is recorded for the first time from Maharashtra.

9. Family: SCHELORIBATIDAE Jacot, 1935

11. Genus: **Scheloribates Berlese, 1908**

1908. *Scheloribates* Berlese, *Redia*, 5:2

12. ***Scheloribates albialatus* Hammer, 1961**

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

Material Examined: 1F, Hadapsar, Panmala, Pune, Maharashtra, 18.49995 & 73.84007, 7.ix.2012, from soil, coll. S. Acharya, 4894/17/ZSIHQ; 1M, Hibargaon Vill., Sangamner Khurd, Ahmednagar, Maharashtra, 19.09521 & 74.74959, 8.ix.2014, soil from Pomegrante garden, coll. A. Chatterjee, 4895/17/ZSIHQ; 2M, Fulambri Vill., Aurangabad, Maharashtra, 20.08818 & 75.41936, 13.ix.2012, from Corn field soil, coll. A. Chatterjee, 4896/17/ZSIHQ; 2M, Ajanta Cave No. 16, Aurangabad, Maharashtra, 20.52975 & 75.7426, 14.ix.2012, from Soil, coll. A. Chatterjee, 4897/17/ZSIHQ; 3M, Shinde Vill., Nashik, Maharashtra, 19.91194 & 73.90218, 9.ix.2015, from Cow dung, coll. S. Acharya, 4898/17/ZSIHQ.

Distribution: India: Maharashtra, West Bengal.

Remarks: This species is recorded here for the first time from Maharashtra.

13. ***Scheloribates giganteus* Hammer**

1961. *Scheloribates giganteus* Hammer, *Biol. Skr. Dan. Vid. Selsk.*, **13**(1): 92.

Material Examined: 1M, Daulatabad Fort, Aurangabad, Maharashtra, 19.9417 & 75.21217, 16.ix.2012, soil from Fort hill top, coll. A. Chatterjee, 4918/17/ZSIHQ; 1M, Hadapsar, Panmala, Pune, Maharashtra, 18.49995 & 73.84007, 7.ix.2012, soil from Paddy field, coll. S. Acharya, 4919/17/ZSIHQ; 1M, Kumbhari Vill., Akola, Maharashtra, 20.69624 & 77.05895, 4.ix.2012, from cow dung, coll. S. Acharya, 4920/17/ZSIHQ; 1M, Shinde Vill., Nashik, Maharashtra, 19.91194 & 73.90218, 9.ix.2012, soil from Chilli field, coll. S. Acharya, 4921/17/ZSIHQ.

Remarks: This species is recorded here for the first time from India.

10. Family: HAPLOZETIDAE

12. Genus: ***Peloribates* Berlese**

1908. *Peloribates* Berlese, *Redia*, **5**:3

14. ***Peloribates longisetosus* (Willman, 1930)**

1930. *Peloribates longisetosus* (Willman), *Zool. Anz. Leipzig*, **88**(9-10): 239-246.

Material Examined: 7M, Hibargaon Vill., Sangamner Khurd, Ahmednagar, Maharashtra, 19.09521 & 74.74959, 8.ix.2012, soil from Pomegrante garden, coll. S. Acharya, 4882/17/ ZSIHQ; 1M, Shinde Vill., Nashik, Maharashtra, 19.91194 & 73.90218, 9.ix.2012, soil from Chilli field soil, coll. S. Acharya, 4883/17/ZSIHQ.

Distribution: India: Himachal Pradesh, Uttar Pradesh.

Remarks: This species is recorded here for the first time from Maharashtra

11. Family: MOCHLOZETIDAE Grandjean, 1980

13. Genus: ***Unguizetes* Sellnick**

1925. *Unguizetes* Sellnick, *Treubia*, **6**: 473.

15. ***Unguizetes clavatus* Aoki**

1967. *Unguizetes clavatus* Aoki, *Nat. Life Southeast Asia*, **5**: 195.

Material Examined: 1M, Deoli Vill., Aurangabad, Maharashtra, 19.84695 & 75.3527, 17.ix.2012, soil from Corn field, coll. A. Chatterjee, 4945/17/ZSIHQ; 1M, Trimbakeshwar, Nashik, Maharashtra, 19.92972 & 73.52792, 09.ix.2012, soil from Methi field, coll. S. Acharya, 4946/17/ZSIHQ.

Distribution: India: Uttar Pradesh, West Bengal.

Remarks: This species is recorded here for the first time from Maharashtra

12. Family: ZETORCHESTIDAE

14. Genus: ***Litholestes* Grandjean, 1951**

1951. *Litholestes* Grandjean, *Mémoires Du Muséum, Zoologie*, **4**(1): 20.

16. ***Litholestes altitudinis* Grandjean, 1951**

1951. *Litholestes altitudinis* Grandjean, *Mémoires Du Muséum, Zoologie*, **4**(1): 21

Material Examined: 24M, Sinhagad Fort, Pune, Maharashtra, 18.366304 & 73.755876, 10.xii.13 from soil, coll. D.N Adagale, 4954/17/ZSIHQ.

Remarks: This species is recorded here for the first time from India.

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