

ON A COLLECTION OF TETRANYCHID MITES FROM ARUNACHAL
PRADESH, INDIA WITH DESCRIPTIONS OF TWO NEW SPECIES

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INTRODUCTION

The information pertaining to mite fauna of Arunachal Pradesh is scanty (Prasad, 1974) and so far as tetranychid mites are concerned, practically nothing is known (Gupta, 1985). The present paper is based upon the collection made during 1981- 1983 from five districts viz. Upper Subansiri, Lower Subansiri, West Siang, Lohit and Tirap. Altogether 15 species under 6 genera are treated in this paper, of which two are described here as new to science. All are first reports from the state.

The measurements given in the text are in microns. The types are in the collection of the Zoological Survey of India, Calcutta. The collection pertaining to 1983 was made by both the authors, while that of 1981 was made by the junior author alone.

Family TETRANYCHIDAE

TETRANYCHIDAE Donnadieu, 1875, *Faculte des sciences de Lyon*, p-9.

Key to the genera and species of Tetranychidae

1. Tarsus I with single set or without closely associated duplex setae, empodial claw absent with one pair of paraanal setae *Aponychus bambusae* sp. nov.
- Tarsus I with 2 pairs of duplex setae, the proximal member of each pair shorter than distal member, empodium claw-like or splits distally 2
2. With 2 pairs of paraanal setae 3
- With 1 pair of paraanal setae 5
3. Empodium claw-like 4
- Empodium ending with tuft of hairs *Eotetranychus*, 6
4. Empodium a single claw - like structure with proximoventral hairs *Panonychus*, 11
- Empodium splits into 2 claw-like structures *Schizotetranychus mansoni*

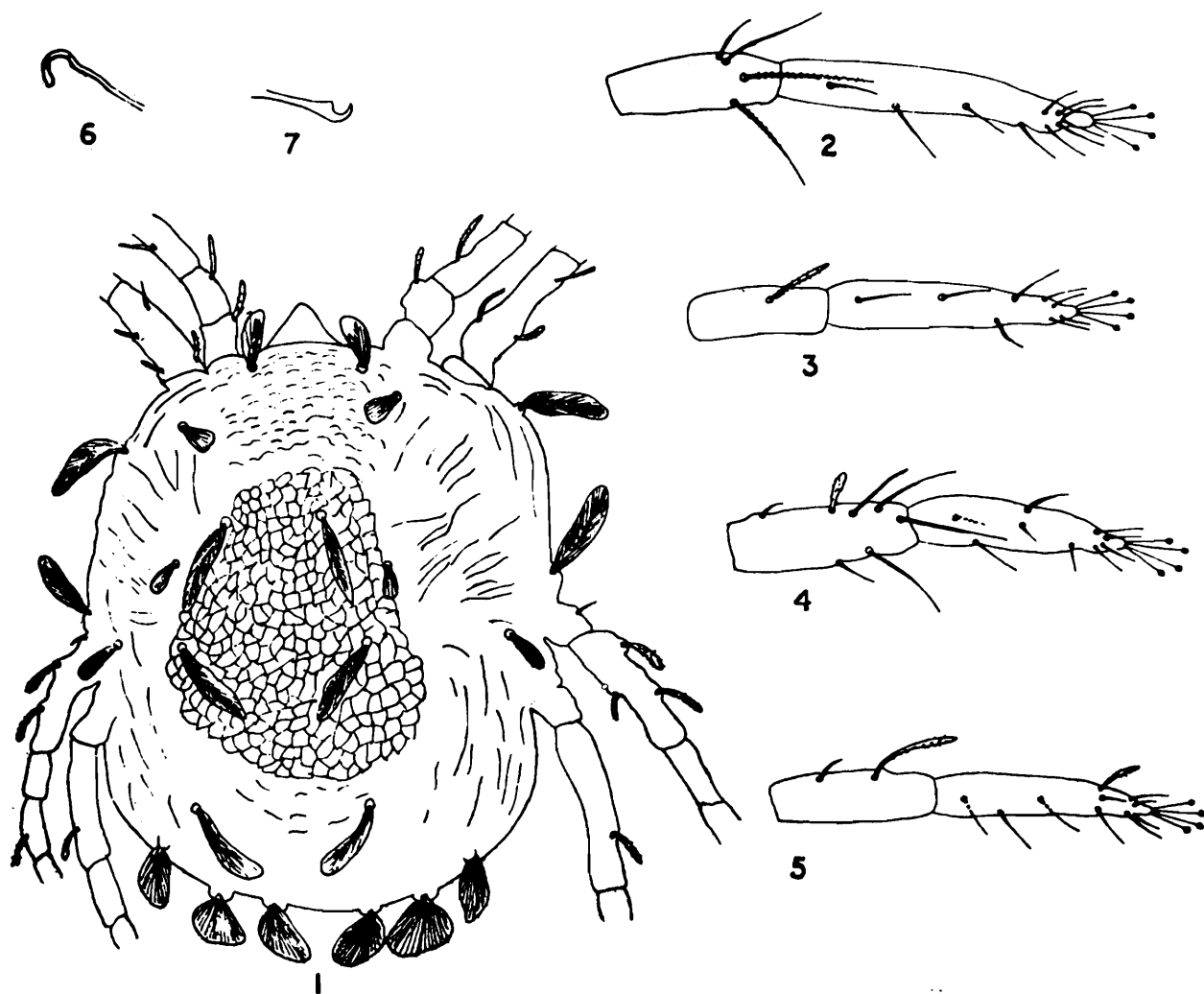
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5. Empodium claw-like with proximoventral hairs, duplex setae of tarsus I distal and approximate *Oligonychus*, 12
 - Empodium splits distally, usually into 3 pairs of hairs, duplex setae of tarsus I well separated *Tetranychus*, 14
6. Dorsal idiosomal setae serrate 7
 - Dorsal idiosomal setae not serrate 8
7. Aedeagus gradually tapering and forming a broad ventral bent *Eotetranychus kankitus*
 - Aedeagus gradually narrows distally and curves dorsad and forming a distal knob *E broodryki*
8. Distal portion of aedeagus sigmoid *E. frosti*
 - Distal portion of aedeagus curved but not sigmoid 9
9. Genital flap with longitudinal striae *E. sexmaculatus*
 - Genital flap with transverse striae 10
10. Peritreme at the distal end as a small bulb *E. pamelae*
 - Peritreme at the distal end curved *E. indicus* sp. nov.
11. Fifth pair of dorsocentrals and 4th pairs of dorsolaterals equal in length *Panonychus citri*
 - Fifth pair of dorsocentrals about 1/3 length of 4th pairs of dorsolaterals *P. ulmi*
12. Aedeagus bent ventrad, tarsus I with not more than single tactile seta on venter just distad of duplex setae *Oligonychus coffeae*
 - Aedeagus bent dorsad, although the distal end may be directed ventrad, tarsus I with 2 tactile setae on venter just distad of duplex setae 13
13. Aedeagus with distal end strongly sigmoid *O. sacchari*
 - Aedeagus with distal end not strongly sigmoid *O. oryzae*
14. Knob of aedeagus berry-like, rounded anterior projection more strongly developed than the posterior convexity *Tetranychus neocaledonicus*
 - Knob of aedeagus not globular, the caudal projection angulate *T cinnabarinus*

1. *Aponychus bambusae* sp. nov.

(Figs. 1 - 7)

Male : Body including rostrum 285 long, 159 wide, oblong. Peritreme at the distal end forming hook-like structure. Palpus with terminal sensillum slender. Idiosoma with dorsal integument wrinkled Idiosomal setae small, serrate and spatulate. Dorsal propodosomal, humerals, second dorsolateral, inner sacrals, clunal setae of same length. Outer sacral absent. I- III dorsocentral setae measure 18 -25, II propodosomal - 21, III propodosomal - 28, humeral - 28. Leg with spatulate setae. Tibia I with 1 sensory, 1 spatulate and 5 tactile setae; tarsus I with 1 sensory and 8 tactile setae. Tibia II with 1 sensory, 1 spatulate setae; tarsus II with 1 sensory, 1 spatulate and 9 tactile setae. Aedeagus more or less hook-like structure.



Figs. 1-7 : *Aponychus bambusae* sp nov.

1. Dorsum of female; 2. Tibia & tarsus I of female; 3. Tibia & tarsus II of female; 4. Tibia & tarsus I of male; 5. Tibia & tarsus II of male; 6. Peritreme of female; 7. Aedeagus.

Female : Body including rostrum 393 long, 159 wide, oblong. Peritreme at the distal end hook - like. Palpus with terminal sensillum slender. Idiosomal setae spatulate. I - III dorsocentral setae measure 46 -64, II propodosomal - 28, III propodosomal - 43, humeral -46 and inner sacral and III dorsocentral setae short with fan - like appearance. Tibia I with 1 sensory, 2 spatulate and 1 tactile setae ; tarsus I with 10 tactile setae Tibia II with 1 spatulate seta; tarsus II with 8 tactile setae. Genital flap with transverse striae. Holotype Male, INDIA : Arunachal Pradesh, Tezu, Arun Bihar, 21.i.1983, on sugarcane , Reg. No. 3185 / 17. Paratypes 5 Females , data same as for holotype , Reg. No. 3186 / 17.

Remarks : This new species resembles *Aponychus makaoi* Ehara & Wongsiri (1975) in the absence of the outer sacral setae, but is easily distinguished from it by having the

dorsocentral setae being five times longer.

2 *Panonychus citri* (McGregor)

1916. *Tetranychus citri*, McGregor, *Ann ent. Soc. Am.*, 9 : 284.

1985. *Panonychus citri*, Gupta, *Handbook. Plant mites of India*. Zool. Surv. India, Calcutta, pp. 92-93.

Material examined : 1 Male, 10 Females, Arunachal Pradesh, Kimin, 2.xi.1981, ex an undet. plant; 1 (M), 5 (F), Yazuli, 30.x.1981, on pear; 15 (F), Loilang, 22.i.1983, ex vegetable plant; 1 (M), Bogapani, 6.i.1983, ex an undet. plant : 1 (M), 6 (F), Deban, area around Lama Basti, 15.i.1983, ex squash ; 2(M), 36(F) on way to Loilang, 7 .i. 1983, ex banana; 1(M), 19(F), Deban, area around Lama Basti, 15. i. 1983, ex pear; 15(F), Tezu, 21.i.1983, ex pear.

Distribution : India : West Bengal, Assam, Meghalaya, Arunachal Pradesh, Punjab, Jammu & Kashmir . Outside India : China, Japan, Middle East, South Africa, New Zealand, Argentina, Bermuda, Cuba, Mexico, Florida, California.

3 *Panonychus ulmi* (Koch)

1836. *Tetranychus ulmi* Koch, *Deut. Crust. Myr. Arach.*, 1 : 11.

1985. *Panonychus ulmi*, Gupta, *Handbook. Plant mites of India*. Zool. Surv. India, Calcutta, pp. 93-94.

Material examined : Several (M), (F), India, Arunachal Pradesh, area around Tezu Circuit House, 22.i.1983, on an undet. plant.

Distribution: India : Himachal Pradesh, Uttar Pradesh, Jammu & Kashmir, Arunachal Pradesh. Elsewhere : Europe.

4. *Eotetranychus sexmaculatus* (Riley)

1985. *Tetranychus 6-maculatus* Riley, *Insect Life*, 2 : 225-226.

1985. *Eotetranychus sexmaculatus*, Gupta, *Handbook. Plant Mites of India*. Zool. Surv. India, Calcutta, pp. 77-78.

Material examined : 1 Male, 1 Female, Arunachal Pradesh, Hyauliang, 26.i.1983, on an undet. plant.

Distribution : India : Meghalaya, Arunachal Pradesh, Karnataka, Tamil Nadu. Elsewhere : Taiwan, Formosa, New Zealand, U.S.A.

5. *Eotetranychus frosti* (McGregor)

1952. *Tetranychus frosti* McGregor, *Proc. ent. Soc. Wash.*, 54 : 142.

1985. *Eotetranychus frosti* Gupta, *Handbook. Plant mites of India*. Zool. Surv. India, Calcutta, pp. 72-73.

Material examined : 1 Male, 8 Female, Arunachal Pradesh, Ringo, Maru, 25.x.1981, on citrus.

Distribution : India : Gujarat, Jammu & Kashmir, Arunachal Pradesh Elsewhere:

Arizona, California, Louisiana, Missouri, North Dakota, Ohio, New York.

6. *Eotetranychus pamelae* Manson

1963. *Eotetranychus pamelae* Manson, *Acarologia*, 5 : 353 - 35

1985. *Eotetranychus pamelae*, Gupta, *Handbook. Plant mites of India*. Zool. Surv. India, Calcutta, p.76.

Material examined : 1 Male, 4 Female, Arunachal Pradesh, Along Agril. Farm, 19.x.1981, ex citrus; 1(M), 3(F), Keying, 20.x.1981, ex mulberry.

Distribution : India : Assam, Arunachal Pradesh, Tamil Nadu.

7. *Eotetranychus kankitus* Ehara

1955. *Eotetranychus kankitus* Ehara, *Annotnes zool. Jap.*, 28: 178.

1985. *Eotetranychus kankitus*, Gupta, *Handbook. Plant mites of India*. Zool. Surv. India, Calcutta, p.75.

Material examined : 1 Male, 14 Females, Arunachal Pradesh, Hapoli, 20.x.1981, ex apple.

Distribution: India : Meghalaya, Arunachal Pradesh, Tamil Nadu.

8. *Eotetranychus broodryki* Meyer

1974. *Eotetranychus broodryki* Meyer, *Rep. South. Africa Dept. Agr. Tech. Ser. Ent. Mem.*, 36 : 201.

1985. *Eotetranychus broodryki*, Gupta, *Handbook. Plant mites of India*. Zool. Surv. India, Calcutta, pp. 71-72.

Material examined : 1 Male, 10 Females, Arunachal Pradesh, Area around Dhala tea estate, 19.i.1981, ex tea.

Distribution : India : Orissa, Arunachal Pradesh Elsewhere: Rhodesia.

9. *Eotetranychus indicus* sp. nov.

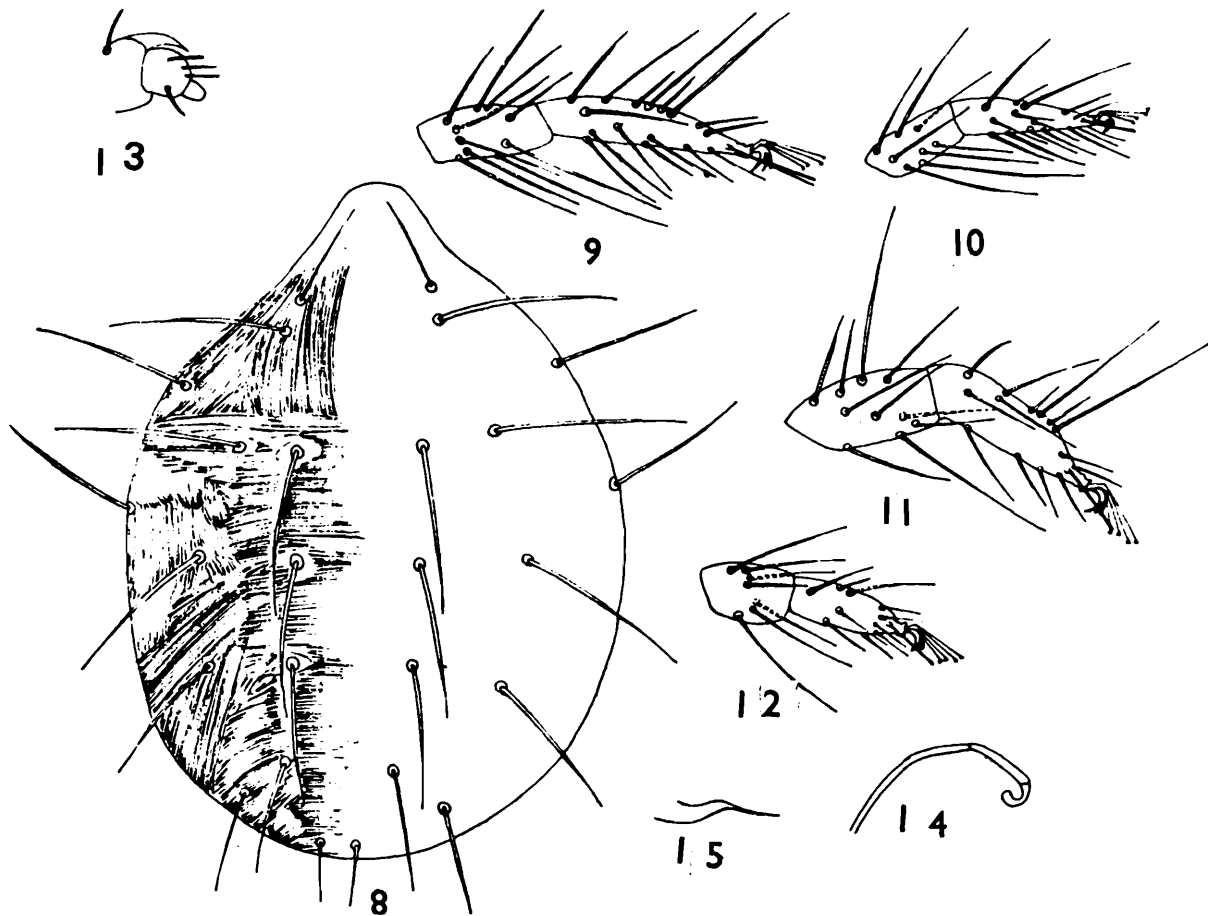
(Figs. 8-15)

Male : Body including rostrum 357 long , 177 wide. Palpus with terminal sensillum 2 times as long as wide; dorsal sensillum much longer, fusiform. Dorsal setae of idiosoma longer than interval between their longitudinal bases. Tibia I with 3 sensory and 7 tactile setae; tarsus I with 1 sensory and 3 tactile setae proximal to duplex setae. Tibia II with 1 sensory and 6 tactile setae; tarsus II with 1 sensory and 2 tactile setae proximal to duplex setae. Aedeagus with proximal portion of shaft curved abruptly and narrowed, distal portion very slender and much similar to that of *E. smithi* Pritchard & Baker.

Female : Body including rostrum 432 long, 213 wide. Palpus with terminal sensillum slightly longer than wide; dorsal sensillum much longer. Peritreme ends in hook-like structure. Dorsal idiosomal setae slightly longer than the interval between their longitudinal bases. Tibia I with 2 sensory and 8 tactile setae; tarsus I with 2 sensory and 4 tactile setae

proximal to duplex setae. Tibia II with 1 sensory and 7 tactile setae proximal to duplex setae. Outer and inner sacrals of same length. Dorsal striations as figured. Genital flap with transverse striae. Medioventral setae moderate in size. Holotype Male, India: Arunachal Pradesh, Baskim village, 24.x.1981, ex apple. Reg. No. 2192/17. Paratypes 4 Females data same as for holotype. Reg. No. 2192/17.

Remarks: The aedeagus of this species resembles *Eotetranychus smithi* Pritchard & Baker (1955) but differs from it in relative number of tactile and sensory setae of tibia and tarsus of both the sexes.



Figs. 8-15. *Eotetranychus indicus* sp. nov.

8. Dorsum of female; 9. Tibia & tarsus I of female; 10. Tibia & tarsus II of female; 11. Tibia & tarsus I of male; 12. Tibia & tarsus II of male; 13. Distal segment of palpus of female; 14. Peritreme of female; 15. Aedeagus.

10. *Schizotetranychus masoni* Gupta

1980. *Schizotetranychus masoni* Gupta, *Rec. zool. Surv. India*, 77: 111-117.

Material examined: 3 Males, Arunachal Pradesh, Hapoli Horticultural garden, ex mother plant.

Distribution: India : Andaman Nicobar Is., Arunachal Pradesh.

11. *Oligonychus coffeae* (Nietner)

1861. *Acarus coffeae* Nietner, *Observ. Coffee Tree Ceylon*, p. 31.

1985. *Oligonychus coffeae*, Gupta, *Handbook. Plant mites of India*. Zool. Surv. India, Calcutta, pp. 83-84.

Material examined : 2 Males, 20 Females, Arunachal Pradesh, Dhala tea estate area, 19. i. 1983, ex tea.

Distribution : India : West Bengal, Assam, Arunachal Pradesh, Tamil Nadu. Elsewhere : U.S.A. , U. S. S. R. Africa, Australia, Japan, Indonesia, Taiwan, Sri Lanka.

12. *Oligonychus oryzae* (Hirst)

1926. *Paratetranychus oryzae* Hirst, *Proc. zool. Soc. Lond.*, p. 830.

1985. *Oligonychus oryzae*, Gupta, *Handbook. Plant mites of India*. Zool. Surv. India, Calcutta, pp. 88-89.

Material examined : 1 Male, 10 Females, Arunachal Pradesh, Yazuli, 30.x.1981, ex paddy.

Distribution : India : Orissa, Arunachal Pradesh, Andaman Nicobar Is., Tamil Nadu, Punjab.

13. *Oligonychus sacchari* (McGregor)

1942. *Paratetranychus sacchari* McGregor, *J. Univ. Puerto Rico*, 26 : 91

1985. *Oligonychus sacchari*, Gupta, *Handbook. Plant mites of India*. Zool. Surv. India, Calcutta, p.90.

Material examined : 2 Males, 9 Females, Arunachal Pradesh, Kimin, 31.x.1981, ex an undet. plant; several (M), (F), 24.x.1981, ex grass; 1(M),9(F)Kimin, 3.x.1981, ex citronella plant.

Distribution : India : West Bengal, Assam, Arunachal Pradesh. Elsewhere : Puerto Rico.

14. *Tetranychus cinnabarinus* (Boisd.)

1867. *Acarus cinnabarinus* Boisduval, *Ent. Hort.*, 88.

1985. *Tetranychus cinnabarinus*, Gupta, *Handbook. Plant mites of India*. Zool. Surv. India, Calcutta, pp. 106-108.

Material examined : 3 Males, 17 Females, Arunachal Pradesh, Lidabali, 14.x.1981, ex an undet. plant; 2(M), 28 (F), Loilang, 22.i.1983, ex papaya; 1(M), 8 (F), Deban, area around Forest Rest House, ex papaya.

Distribution : India : Orissa, Meghalaya, Arunachal Pradesh , Bihar, Rajasthan, Punjab,

Gujarat, Haryana, Tamil Nadu, Karnataka. World wide.

15. *Tetranychus neocaledonicus* Andre

1933. *Tetranychus neocaledonicus* Andre, *Bull. Mus. natn. Hist. nat. Paris*, (2) 5 : 302.

1985. *Tetranychus neocaledonicus*, Gupta, *Handbook. Plant mites of India. Zool. Surv. India*, Calcutta, pp 113-115.

Material examined : Several Males, Females, Arunachal Pradesh, Deban around Chakma Basti, 16.i.1983, on papaya.

Distribution : India: Assam, Arunachal Pradesh, Meghalaya, Orissa, Bihar, Punjab, Delhi, Haryana, Uttar Pradesh, Rajasthan, Maharashtra, Kerala, Karnataka. Elsewhere: Hawaii, Fiji, Bahamas, Venezuela, Puerto Rico, U.S.A., Africa.

SUMMARY

Fifteen species of tetranychid mites belonging to six genera are reported here from Arunachal Pradesh. This includes two new species, of *Aponychus* and *Eotetranychus*. All are new reports for the state.

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