

SOME NEW RECORDS OF PHYTOSEIIDAE FROM INDIA.  
(ACARINA : MESOSTIGMATA)

*By*

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(With 4 Text-figures)

Recently, the authors had the opportunity to examine a small collection of Phytoseiidae from different parts of India. Out of those, four species were found to be quite interesting and not hitherto recorded from India. Those are redescribed here in the light of modern taxonomic concepts and are also illustrated to help the future workers in easily recognising those species.

The material treated here are deposited in the collection of the Zoological Survey of India. The measurements given in the text are in microns. The setal nomenclature as of Rowell *et al.*, (1878) is followed.

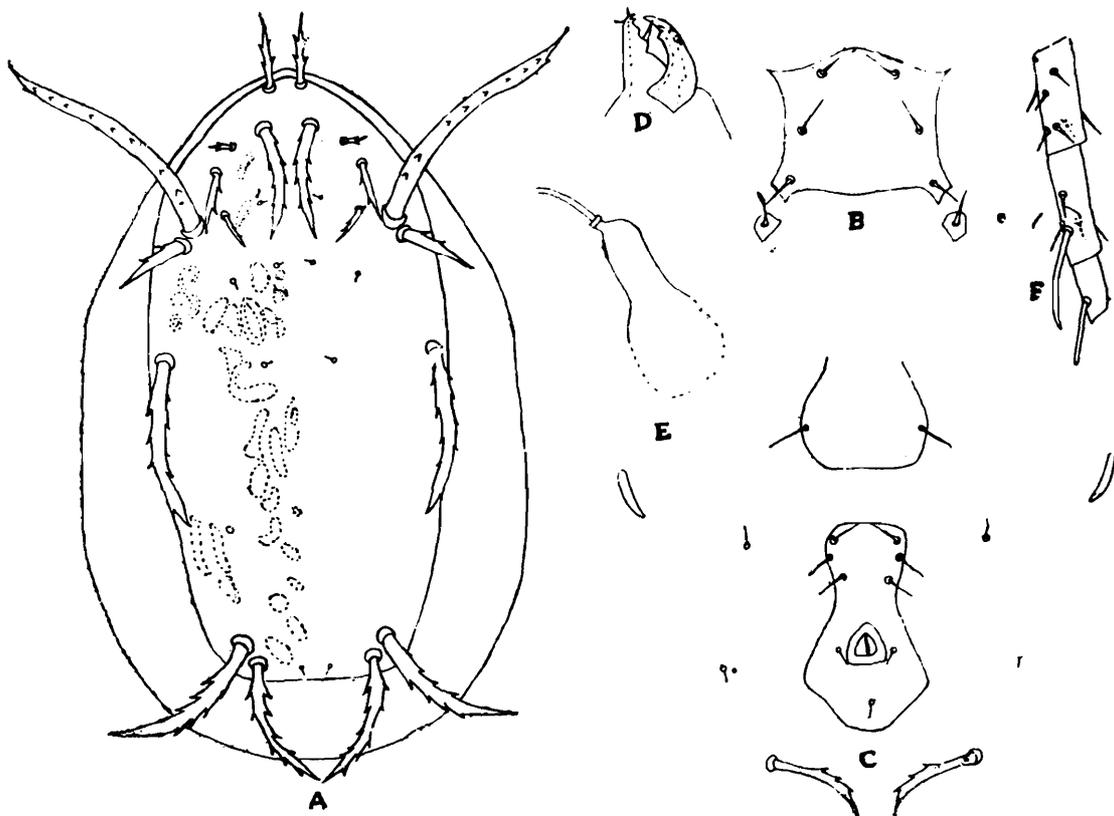
**Phytoseius (Phytoseius) mixtus Chaudhri**

(Text-fig. 1)

*Phytoseius (Phytoseius) mixtus* Chaudhri, 1973, *Pakist. J. Zool.*, 5 : 83-85.

**Female** : Dorsal shield rugose, 280 long, 134 wide, with 15 pairs of setae and a few pairs of pores. Setae j3, s4, s6, Z5, j1, r3, Z4 long, thick and serrate, other setae minute. Measurements of setae : j1—29, j4—j6, J5—4-5 each, j3—56, z2—16, z3—36, z4—20, s4—130, s6—78, Z5—72, z5—5, Z4—95, r3—52 ; Z4 much thicker than Z5. Sternal shield wider (85) than long (67) with 3 pairs of moderately long setae ; metasternal plate distinct with seta. Genital shield normal with setae. Ventrianal shield much longer (90) than wide (42) with a conspicuous constriction little below the level of 3rd. preanal seta, para- and post-anal setae present as usual ; 3 pairs of setae present

around ventrianal shield, JV5 56 long, serrate ; metapodal plate single paired, moderately long ; transverse striation present between genital and ventrianal shields. Chelicera with 2 teeth anterior to *pilus dentilis*, on the fixed digit, movable digit with one tooth. Spermatheca with a tubular cervix and a knobbed atrium, major duct long. Leg IV with maceosetae on tibia-56, basitarsus-31, distitarsus-31 ; macroseta absent on genu.



Text-fig. 1 (A-F) : *Phytoseius* (*Phytoseius*) *mixtus* Chaudhri (♀) : A—dorsal shield, B—sternal shield, C—posterior ventral surface, D—chelicera, E—spermatheca, F—leg IV.

*Male* : Unknown.

*Material examined* : 1 ♀, INDIA ; U. P., Barkot, 3. ix. 1976, ex grass. (Coll. *S. K. Gupta*) (Z. S. I. Reg. No. 3178/17).

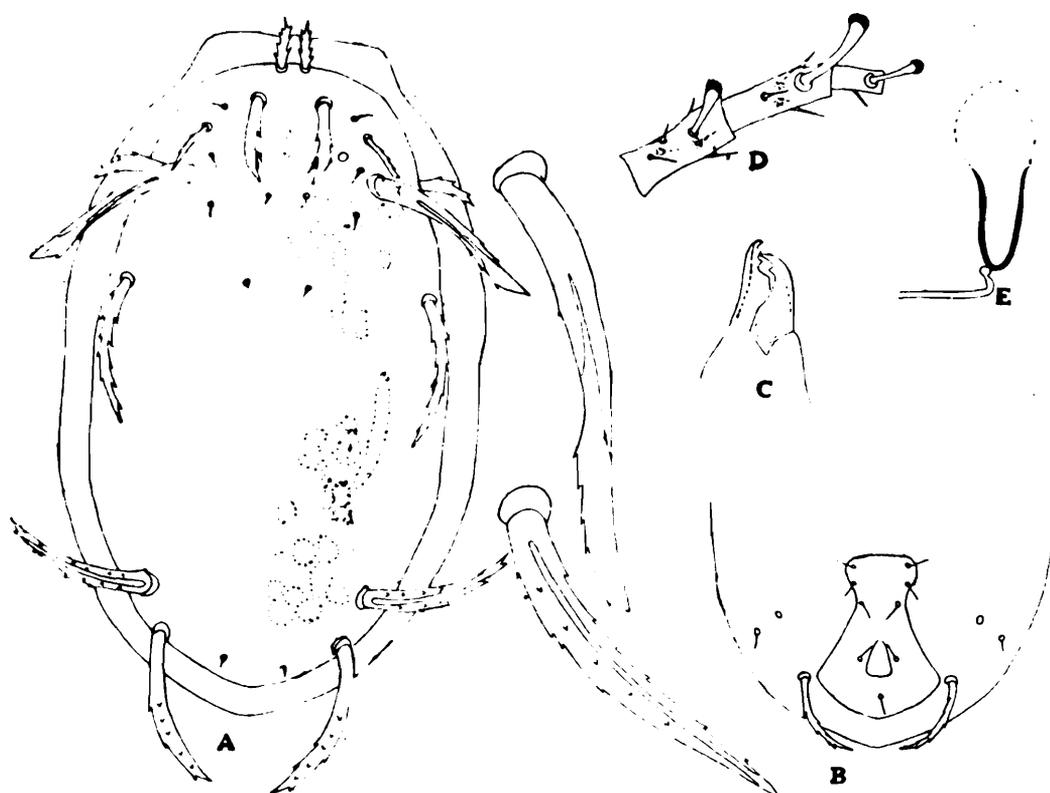
*Remarks* : The present specimen agrees well with description provided by Chaudhri (1973) except that the notocephalic pore associated with z5 is lacking in the specimen examined by the authors. Besides, the number of small platelets present around genital and ventrianal shields are also absent in the specimen. In spite of these differences, the present specimen is considered to be same as *mixtus* while the characters lacking here are regarded as variations. This species was earlier described from Pakistan and the present one is the first record from India.

**Phytoseius (Phytoseius) crinitus** Swirski & Shechter

(Text-fig. 2)

*Phytoseius (Dubininellus) crinitus* Swirski and Shechter, 1961, *Israel J. agric. Res.*, 11 (2) : 102-104.

**Female** : Dorsal shield 280 long, 168 wide with 15 pairs of setae, of those, 7 pairs in lateral series, 2 pairs in median series, 5 pairs in dorsocentral series, in addition, r3 also present on dorsal shield. Besides setae j4—j6, J5, z2, z4, all other setae being long, thick and serrate ; s4 and Z4 appear to be divided. Measurements of setae :



Text-fig. 2 (A-E) : *Phytoseius (Phytoseius) crinitus* Swirski and Shechter (♀) A—dorsal shield, B—posterior ventral surface, C—chelicera, D—leg IV, E—spermatheca.

j1—29, j4—j6, z5, J5— 4-5 each, j3—40, z2-18, z3-31, z4-11, s4-101, s6-67, Z5-65, Z4-83, r3-38. Ventrally, sternal and genital shields not discernible. Ventrianal shield much longer (90) than wide (56) with 3 pairs of preanal setae, preanal pores appear to be absent, 3 pairs of setae present around ventrianal shield, JV5 36 long. Chelicera with 2 teeth on fixed digit and one tooth on movable digit. Macrosetae on leg IV : genu-31, tibia-50, basitarsus-27, distitarsus-22, all being spatulate. Spermatheca as figured.

**Male** : Unknown.

**Material examined** : 1 ♀, INDIA : ASSAM, Jorhat, January, 1980, ex undetermined host (Coll. A. Saha). (Z. S. I. Reg. No. 3183/17)

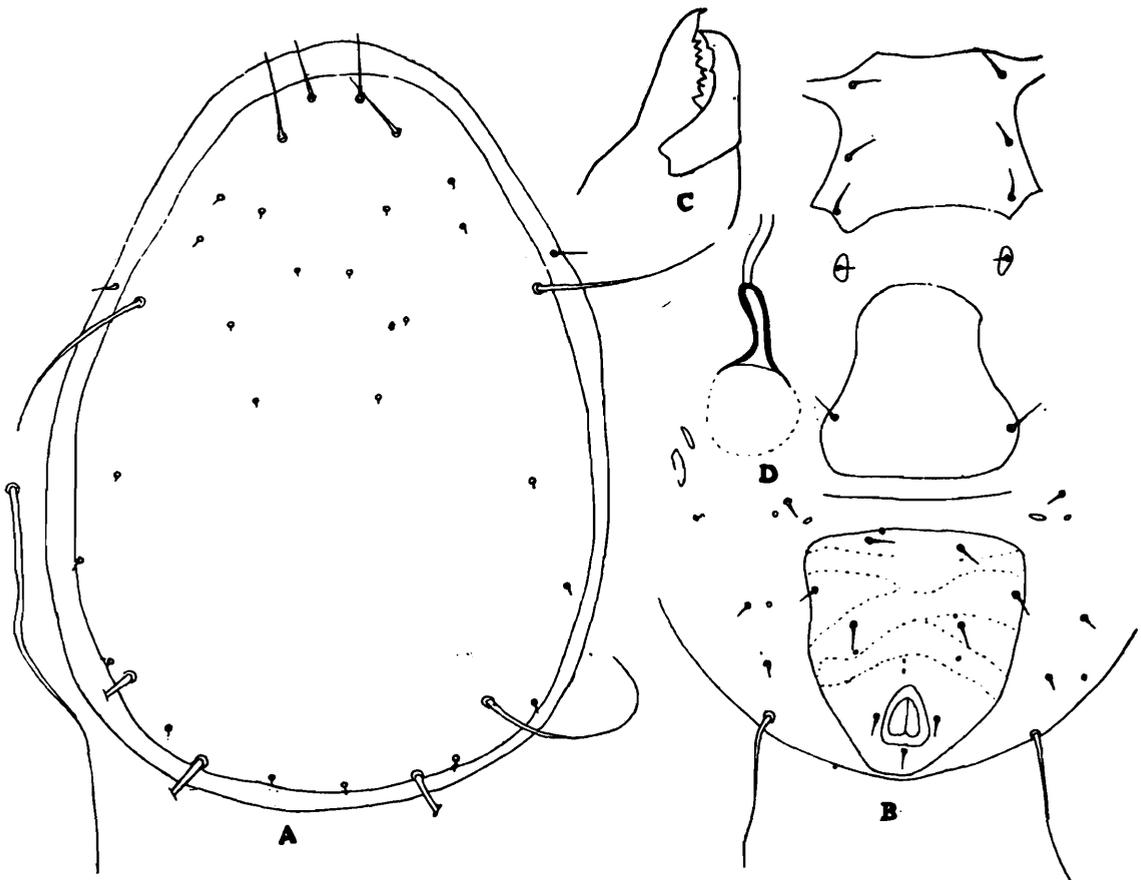
*Remarks* : This species was described by Swirski & Shechter in 1961 from Hong Kong and since then it has been recorded from number of places. The specimen examined by the present authors mostly conform with re-description of Denmark (1966) but differs from that in having macroseta on genu IV longer than that of basitarsus IV. This is the first record of this species from India.

***Amblyseius (Amblyseius) rhabdus* Denmark**

(Text-fig. 3)

*Amblyseius rhabdus* Denmark, 1965, *Florida Ent.*, 48 (2) : 95.

*Female* : Dorsal shield 403 long, 247 wide, smooth with 17 pairs of setae, of those, j1, j3, s4, Z4, Z5 long or moderately long while the



Text-fig. 3 (A-D) : *Amblyseius (Amblyseius) rhabdus* Denmark. (♀) : A—dorsal shield, B—ventral surface, C—chelicera, D—spermatheca.

other setae being short and simple. Measurements of setae : j1—27, j4—j6— 5-6 each, j3—47, s4—103, Z5— 319, Z4— 156, the rest of the setae measure between 5-6 each. Ventrally, the sternal shield 78 long, 112 wide with 3 pairs of setae, metasternal plate distinct with a seta. Genital shield normal with a pair of setae, a distinct fold present between genital and ventrianal shields. Ventrianal plate shield shaped, reticulate (more prevalent in the region anterior to anal pore while

it is absent beyond that region) with 3 pairs of preanal setae and a pair of preanal pores ; 4 pairs of setae present around ventrianal shield, ventrianal shield 134 long, 125 wide. Fixed digit of chelicera multidentate while 2 teeth present on movable digit. Spermatheca as figured.

*Male* : Unknown.

*Material examined* : 2 ♀♀, INDIA : TAMIL NADU, Coimbatore, 1978-1979 (no definite collection date mentioned) ex tea (Coll. R. L. N. Murthy & R. Chandrasekharan). (Z. S. I. Reg. No. 3180/17)

*Remarks* : This species was originally described by Denmark (1965) basing on material collected in Florida. The present material agree well with description of Denmark (1965) as well as with that of Muma & Denmark (1970). This material possess teeth on the movable digit while as per the description of the earlier workers the same was lacking. In addition to this, the setae on the dorsocentral series are smaller in the material examined by the present workers. This is the first record of the species from India.

### ***Amblyseius (Amblyseius) deleoni* Muma and Denmark**

(Text-fig. 4)

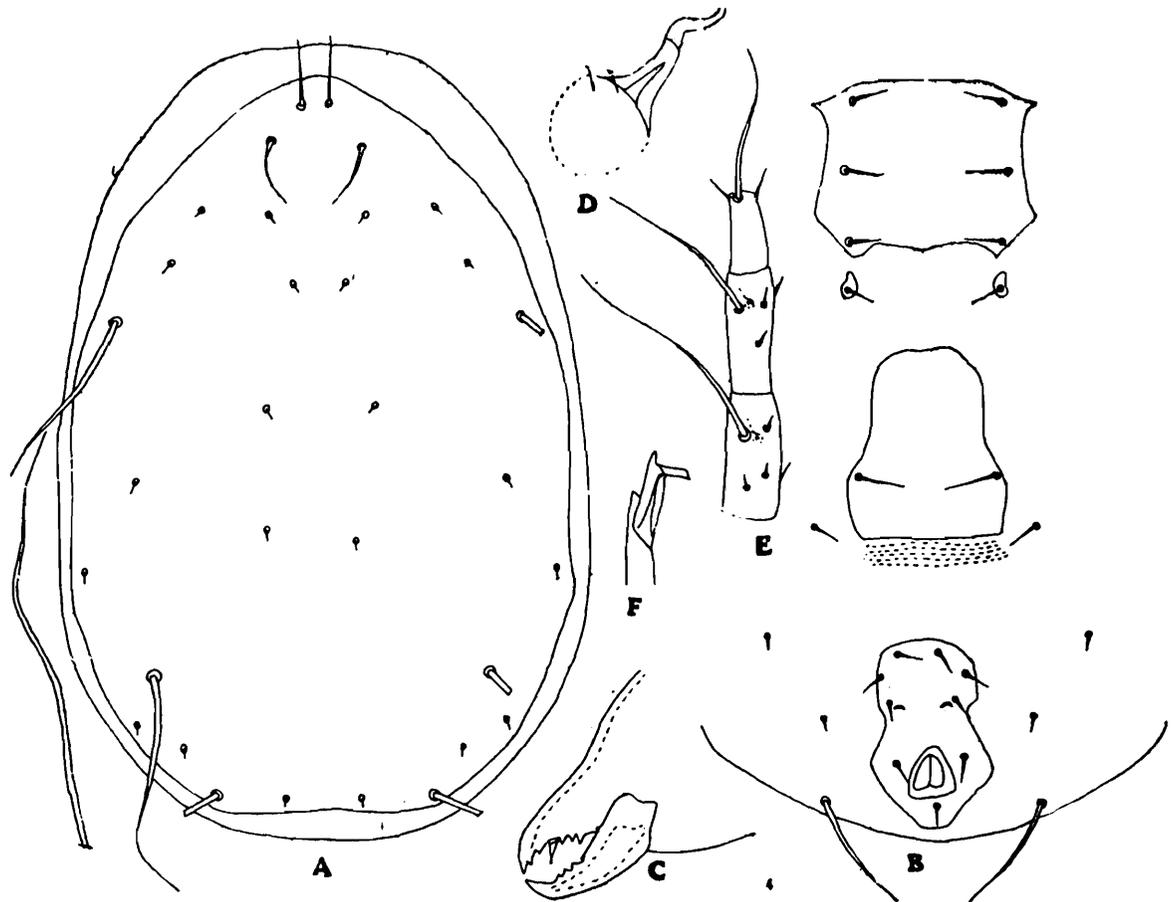
*Amblyseius (Amblyseius) largoensis* Muma, Muma, 1961, *Bull. Fla St. Mus.*, 5 (7) : 287.

*Amblyseius deleoni* Muma & Denmark, 1970, *Fla Dept. Agr. Con. Serv.*, 6 68-69.

*Female* : Dorsal shield smooth, 357 long, 255 wide with 17 pairs of setae. Setae j1, j3, s4, Z5, Z4 being long, other setae minute. Measurements of setae : j1—35, j4—j6, J2, J5— 4-5 each, J3— 33, z2—9, z4—11, s4—107, Z1—9, S2—13, S4—9, S5—13, Z5—205, z5-6, Z4—125, r3—11, R1—7. Ventrally, sternal shield 81 long, 94 wide with 3 pairs of sternal setae, metasternal plate present with a seta. Genital shield 78 wide with a pair of setae. Ventrianal shield 116 long, 67 wide with 3 pairs of preanal setae, single pair of preanal pores present at the base of 3rd pair of preanal setae ; one pair of preanal and a postanal seta present ; 4 pairs of setae present around ventrianal shield, JV5 67 long, 2 pairs of metapodal plates present, primary one— 21 long, secondary one —14 long. Peritreme extends anteriorly upto the base of j1. Fixed digit of chelicera with 5 strong teeth and a *pilus dentilis*, movable digit with 3 minute teeth. Spermatheca as figured. Macrosetae on legs : genu II— 35, genu III— 51, tibia III— 40, genu IV— 129, tibia IV— 90, basitarsus IV— 76.

*Male* : Spermatophoral process as figured.

*Material examined* : 3 ♀♀, INDIA : TRIPURA, Kumarghat, 19. x. 1979, ex *Aegle marmelos* (Coll. S. Ray) ; 2 ♀♀, U. P., Barkot, 3. ix. 1979, ex undetermined host (Coll. S. K. Gupta). (Z. S. I. Reg. No. 3181/17).



Text-fig. 4 (A-E) : *Amblyseius (Amblyseius) deleoni* Muma and Denmark (♀). A—dorsal shield, B—ventral surface, C—chelicera, D—spermatheca, E—leg IV. (F) : *A. (A.) deleoni* (♂) spermatophoral process.

*Remarks* : This species is often confused with *A. largoensis* (Muma) but is distinguished from it by its fundibuliform spermathecal cervix. This mite has been recorded earlier from North America, South America, S. Africa, Madagascar, Taiwan and Thailand. This is the first record of this species from India.

#### ACKNOWLEDGEMENTS

The authors express grateful thanks to the Director, Zoological Survey of India, Calcutta for the facilities. The senior author is indebted to the University Grants Commission, New Delhi for providing financial help and to the Principal, M. B. B. College, Agartala for giving her constant encouragements.

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