

New records of Tubulifera (Thysanoptera: Phlaeothripidae) from the state of Karnataka, India

Kaomud Tyagi

Zoological Survey of India, M-Block, New Alipore, Kolkata, West Bengal 700053, India
Email: kumud.tyagi5@gmail.com

The family Phlaeothripidae is the sole family of the suborder Tubulifera, the largest family of Thysanoptera. It includes 3500 species reported from all over the world, of which only 10% are recorded from India (Tyagi & Kumar 2011). The family Phlaeothripidae is classified into two subfamilies, Phlaeothripinae and Idolothripinae. The members of Phlaeothripinae are distinguished from Idolothripinae by the following characters: (a) slender maxillary stylets, (b) presence of pore plate on median sternites in many species, (c) short and stout S2 setae on abdominal tergite IX and (d) the presence of maxillary guides. So far 50 species in 34 genera have been reported from Karnataka (Ananthakrishnan & Sen 1980; Tyagi & Kumar 2011). In surveys for Thysanoptera in different parts of Karnataka, 13 species are being reported here for the first time from Karnataka and they include leaf-feeders, flower dwellers, predators, and a few being

gall inducers.

Material and Methods:

Specimens were preserved in collecting fluid (9 parts 10% alcohol+1 part glacial acetic acid+1 ml Triton X-100 in 1000ml of the mixture). The photographs were taken through an Leica stereo zoom Microscope (Leica M 205A) and using Leica software application suite (LAS V3.8). Specimens were mounted in Canada balsam for permanent preservation. The specimens were collected at random, subsequently sorted out and identified with the help of the standard key available for Indian fauna (Ananthakrishnan & Sen 1980).



Aleurodothrips fasciapennis Franklin

(Image 1)

Aleurodothrips fasciapennis Franklin, 1909, *Ent. News*, 228.

Material studied: One male, 14.x.2006, *Ficus* sp., Udipi, Hullikal Ghat, Karnataka, India; one male, 09.v.2008, *Mangifera indica*, Hessarghatta, Bengaluru, leg. Kaomud Tyagi; one male, 4.x.2006, ornamental plant, NBAII, Bengaluru, leg. S.K. Rajeshwari; one female, 30.ix.2007, mango galls, Ravi Shankar Farm, Thalghatpura, leg. Ankita Gupta (2011/Thy/ Tub/201, 202, 203, 204-NBAII).

Diagnosis: Bicoloured body with banded wings, notopleural sutures absent, pelta divided into three parts and fore femora of male with distinctive tooth. It is a predator of scale insects and immature stages of whitefly (Mound & Marullo 1996).

Distribution: India: Karnataka (new record), Kerala, Tamil Nadu, West Bengal.

Arrhenothrips ramakrishnae Hood

(Image 2)

Arrhenothrips ramakrishnae Hood, 1919, *Insect. Inscit. Menstr.* 99.

Material studied: Eight females, one male, three pupae, 25.x.2005, unidentified plant, Hessarghatta, Bengaluru, Karnataka, India, leg. Vikas Kumar & Kaomud Tyagi; five females and two males, 17.i.2006, unidentified plant, Nandi Hills, leg. Kaomud Tyagi (2011/Thy/Tub/205 to 222-NBAII).

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Abbreviations: NBAII - National Bureau of Agriculturally Important Insects, Bangalore

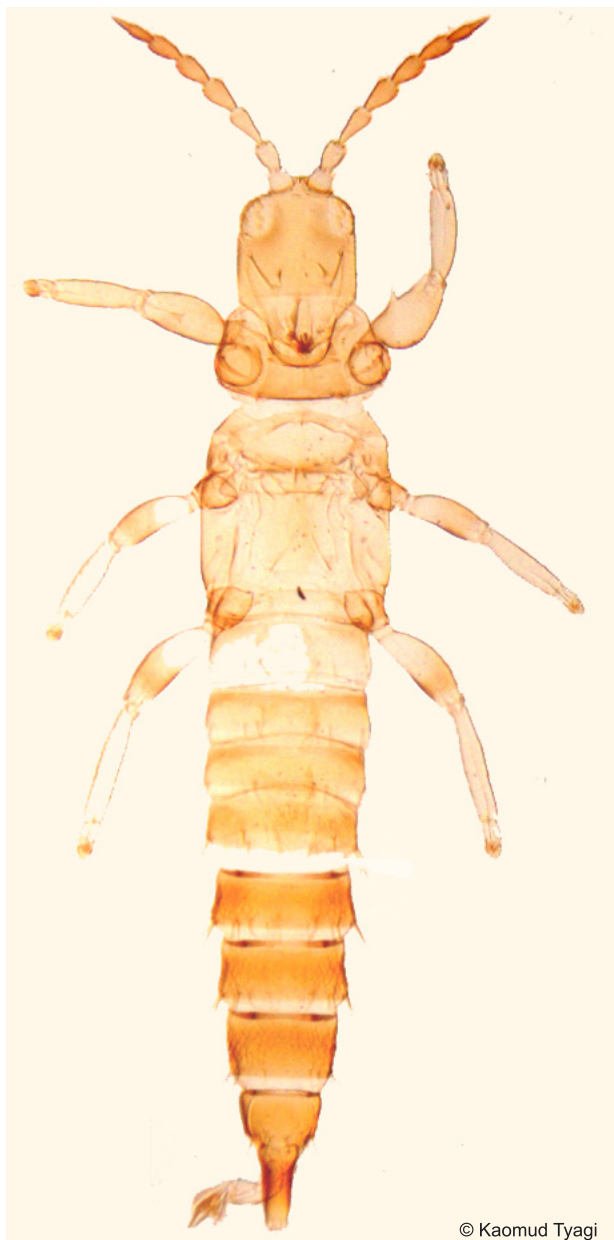


Image 1. *Aleurothrips fasciapennis*

Diagnosis: Dark blackish-brown body, notopleural sutures complete, fore femora broader than head, fore tibia apex with bifid tooth and fore tarsus with well developed tooth.

Distribution: India: Karnataka (new record), Tamil Nadu, West Bengal.

***Bamboosiella varia* (Ananthkrishnan & Jagadish)
(Image 3)**

Xenothrips varius Ananthkrishnan & Jagadish, 1969, Zool. 182(1-2): 132.

Material studied: One female, 23.iv.2008, Bamboo,



Image 2. *Arrhenothrips ramakrishnae*

Magadi near to Bengaluru, leg. Kaomud Tyagi, (2011/Thy/Tub/223-NBAII).

Diagnosis: Brown body, postocular setae expanded apically, maxillary stylets short and confined to the mouth cone, pronotal anteromarginals setae well developed and expanded at apex, notopleural sutures complete, fore tarsus with tooth and S1 setae on tergite IX expanded apically and S2 setae pointed.

Distribution: India: Karnataka (new record), Kerala, Uttar Pradesh.

***Byctothrips ayyari* Ananthkrishnan
(Image 4)**

Byctothrips ayyari Ananthkrishnan, 1973, Oriental Ins. 7: 540.

Material studied: Ten females, 16.ii.2006, Unidentified plant, Malaya Maaruta (20km west



Image 3. *BamboosIELla varia*

from Mudigree), Chikmagalur, Karnataka, India leg. Shivprakash (2011/Thy/Tub/224 to 233-NBAII).

Diagnosis: Brown body, prothorax 1.4 times broader than head, notopleural sutures complete, basantral plates absent, fore femora strongly enlarged, fore tibia very short and with tooth at apex and fore tarsus with tooth in both sexes.

Distribution: India: Karnataka (new record), Tamil Nadu.

Dixothrips onerosus Ananthakrishnan

(Image 5)

Dixothrips onerosus Ananthakrishnan, 1969, Oriental Ins. 3: 294.

Material studied: 10 females, 08.vi.2010, galls of *Terminalia chebula*, Savandurga, Bengaluru, Karnataka, India, leg. Umeshkumar (2011/Thy/Tub/234 to 243-NBAII).



Images 4. *Byctothrips ayyari*

Diagnosis: Body brown, notopleural sutures complete, basal wing setae (S1, S2 and S3) of fore wing arranged peculiarly, S2 setae just below the S1 setae, antennal segments globular and tube much longer than head.

Distribution: India: Andhra Pradesh, Karnataka (new record), Kerala.

Dolichothrips citripes (Bagnall)

Neoheegeria citripes Bagnall, 1921, Ann. Mag. Nat. Hist. (9)7: 360–361.

Material studied: One female and two males, 17.ix.2009, Abutilon, Kolar, Karnataka, India, leg. Kaomud Tyagi (2011/Thy/Tub/244, 245, 246-NBAII).

Diagnosis: Brown body, pronotal anteroangular setae close to anteromarginal setae and midlateral setae much smaller than other major setae and presence of 3 pairs of sigmoid setae on tergite II to VII.

Distribution: India: Bihar, Chandigarh, Delhi, Karnataka (new record), Orissa.



Image 5. *Dixothrips onerosus*



Image 6. *Gynaikothrips bengalensis*

***Ecacanthothrips tibialis* Bagnall**

Ecacanthothrips tibialis Bagnall, 1909, Ann. Soc. Ent. Belg. 52: 348.

Material studied: Three females and three males, 06.viii.2010, dry twigs of coconut, Shettahalli, Tumkur, Karnataka, India; one female and two males, 12.viii.2009, dead branches, Tumkur; one male, 22.vi.2010, *Artocarpus altilis*, Somnathanahalli, Bengaluru, leg. Kaomud Tyagi (2011/Thy/ Tub/256 to 265-NBAII).

Diagnosis: Antennal segment III with 10 sense cones, pelta triangular, mid and hind femur with three stout capitate setae on anterior margin and fore femora of male with a pair of apical tubercle.

Distribution: India: Assam, Karnataka (new record), Kerala, Manipur, Meghalaya, Nagaland, Tamil Nadu, West Bengal, deposited in NBAII, Bangalore, Karnataka.

***Gynaikothrips bengalensis* Ananthkrishnan (Image 6)**

Gynaikothrips bengalensis Ananthkrishnan, 1973, Oriental Ins. 7: 543.

Material studied: 13 females and four males, 11.viii.2008, galls of *Ficus benjamina*, Bengaluru,

Karnataka, India, leg. Sunil Joshi; six females, January 2008, galls of unidentified plant; four females and one male, 21.ix.2010, galls of *Ficus* sp., Rajunukunte, leg. Kaomud Tyagi (2011/Thy/Tub/266 to 293-NBAII).

Diagnosis: Pronotum with twisted striae, all dorsal prothoracic setae well developed, head with two pairs of postocular setae, outer pair longer than inner; mouthcone broadly rounded, fore tarsus with tooth in both sexes, S1 and S2 setae on tergite IX pointed apically and tube longer than head.

Distribution: India: Karnataka (new record), Manipur, Nagaland, West Bengal.

***Gynaikothrips uzeli* (Zimmerman) (Image 7)**

Mesothrips uzeli Zimmerman, 1900, Bull. Inst. Bot. Buit. 7: 12.

Material studied: Four females, 15.vi.2010, galls of *Ficus retusa*, Devarayanadurga, Tumkur, Karnataka, India, leg. Kaomud Tyagi (2011/Thy/ Tub/294 to 297-NBAII).



Image 7. *Gynaikothrips uzeli*

Diagnosis: Pronotum with twisted striae, pronotal anteroangulars and anteromarginals subequal and short as also midlaterals and posteroangulars, only epimeral setae long and well developed, head with two pairs of postocular setae, mouthcone broadly rounded, fore tarsus with tooth in both sexes, S1 and S2 setae on tergite IX pointed apically and tube longer than head.

Distribution: India: Assam, Karnataka (new record), Orissa, Tamil Nadu, West Bengal.

***Karnyothrips flavipes* (Jones)**

(Image 8)

Anthothrips flavipes Jones, 1912, U.S. Dept. Agr., Bur. Ent., Tech Ser. 23(1): 18–19.

Material studied: One female, 31.x.2005, *vitex negundo*, IIHR, Hessarghatta, Bengaluru, Karnataka, India; one female, 06.vi.2006, mixed vegetation; one female, 02.v.2006, *Premna obtusifolia*, leg. Kaomud Tyagi (2011/Thy/Tub/298,299, 300-NBAII).

Diagnosis: Body dark blackish-brown, segment III with two and IV with four sense cones, postocular setae expanded at apex, pronotal anteromarginals vestigial, other prothoracic setae well developed and dilated at apex and S1 setae on tergite IX expanded at apex.



Image 8. *Karnyothrips flavipes*

Distribution: India: Karnataka (new record).

***Karnyothrips melaleucus* (Bagnall)**

(Image 9)

Hindsiana melaleucus Bagnall, 1911, Ent. Mag. 47: 61.

Material studied: 15 females, 03.xii.2006, Hibiscus, Bengaluru, Karnataka, India; 11 females, 06.v.2008, grass clumps, Hessarghatta; two females, 23.iv.2008, Bamboo, Magadi; two females, 20.i.2010, grass clumps, Haroanhalli; one female, 23.iv.2010, dry twigs, GKVK; four females, 14.viii.2006, grass, Bannerghatta, leg. Kaomud Tyagi; one female 15.xii.2006, Hosakote, leg. Ankita Gupta (2011/Thy/Tub/301 to 336-NBAII).

Diagnosis: Body bicoloured, segment III with two and IV with three sense cones, postocular setae expanded at apex, pronotal anteromarginals vestigial,



Image 9. *Karnyothrips melaleucus*



Image 10. *Mallothrips indica*

other prothoracic setae well developed and dilated at apex and S1 setae on tergite IX pointed or blunt at apex.

Distribution: India: Assam, Karnataka (new record), Kerala, Tamil Nadu.

***Mallothrips indica* Ramakrishna
(Image 10)**

Mallothrips indica Ramakrishna, 1928, Mem. Dept. Agr. India, Ent. Ser. 10(7): 308.

Material studied: Nine females, 09.viii.2007, *Syzium cumini*, Thalghatpura, Bengaluru, Karnataka, India, leg. Ankita Gupta (2011/Thy/ Tub/337 to 345-NBAII).

Diagnosis: Brown body, maxillary stylets close together in the middle of head, maxillary bridge present, broad, segment III with two and IV with four sense cones, all dorsal prothoracic setae well developed and expanded at apex and S1 and S2 setae on tergite IX pointed.

Distribution: India: Andhra Pradesh, Tamil Nadu, Karnataka (Bangalore, new record).

***Xylaplothrips ligs* Ananthkrishnan & Jagadish**
Xylaplothrips ligs Ananthkrishnan & Jagadish, 1971, Zoo. Anz. 186: 261–263.

Material studied: One female, 13.vi.2006, *Tegetes erecta*, Chikkaballapura, Bengaluru, Karnataka, India, leg. Kaomud Tyagi (2011/Thy/Tub/346-NBAII).

Diagnosis: Body brown, maxillary stylets retracted far into the head, wide apart; maxillary bridge present, antennal segment III with one and IV with three sense cones and S1 and S2 setae pointed apically.

Distribution: India: Andhra Pradesh, Delhi, Karnataka (new record)

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