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New distribution records of thrips (Thysanoptera: Terebrantia) from Karnataka, India

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ABSTRACT: Extensive roving surveys were carried out in different agro ecological zones of Karnataka from 2023 to 2025. Twelve terebrantian thrips species under nine genera of the family Thripidae, are newly recorded from Karnataka, India and various host plants of the collected species are mentioned. This survey report newly adds three genera namely *Panchaetothrips* Bagnall*, Priesneriola* Ananthakrishnan and *Anascirtothrips* Bhatti to the fauna of Karnataka. Diagnostic characters, habitus images of all the species, distribution and material examined for these species are provided. The salient findings of our research highlight the need for further surveys and studies on the thrips fauna of Karnataka.

Keywords: Thripidae, Terebrantia, thrips, fauna, Karnataka

INTRODUCTION

Thrips are economically important insects belonging to the order Thysanoptera with two suborders *viz*., Terebrantia and Tubulifera. Thrips are small creatures with size ranged from 1 to 15 mm. The suborder Terebrantia is the most economically important group in the order Thysanoptera due to the presence of economically important agricultural pests and vectors of plant viruses. Of the eight families in Terebrantia, members of Aeolothripidae are exclusively predatory, whereas all agriculturally important pests and virus vectors belong to Thripidae. Under Terebrantia, approximately 2600 species belonging to 335 genera are recorded from world (Thrips Wiki, 2025) and 350 species under 125 genera are recorded from India (Rachana and Varatharajan, 2017; Tyagi *et al.,* 2024). A total of 82 terebrantian thrips species are reported from Karnataka (Rachana *et al.,* 2020; Tyagi *et al.,* 2024). In a recent survey aimed at exploring the terebrantian thrips fauna of Karnataka, twelve species belonging to the family Thripidae were recorded for the first time from the state. This study contributes to the thrips faunal addition of the region.

MATERIALS AND METHODS

Comprehensive and random taxonomic surveys were carried out across different agro-climatic zones of Karnataka covering 18 districts (Table1 and Fig. 1) from August 2023–May 2025 for collection of thrips, irrespective of host plants. During survey in each district three talukas were covered. The standard beating method was employed for collection of samples (Ananthakrishnan and Sen, 1980). The collected thrips samples were preserved in Alcohol Glacial Acetic acid (AGA) media composed of 9 parts 10 % alcohol + 1 part glacial acetic acid + 1 ml Triton-X 100 (Bhatti, 1999). Specimens were processed in a series of chemical solutions and mounted in canada balsam to ensure permanent preservation. The specimens were collected randomly, then sorted and identified using appropriate taxonomic keys. (Wilson, 1975; Bhatti, 1980; Palmer, 1992; Mound and Ng, 2009; Masumoto, 2010). Voucher specimens are retained in the repository of the ICAR–National Bureau of Agricultural Insect Resources (ICAR-NBAIR), Bangalore, Karnataka, India. All specimens were collected by first author unless otherwise indicated.

Table 1. Districts surveyed during the study period

Sl. No.	District	Agro-climatic zones
1.	Kolar	Eastern Dry Zone
2.	Chikkaballapura	
3.	Bangalore South	
4.	Bangalore Rural	
5.	Bangalore Urban	

6.	Chitradurga	Central Dry Zone
7.	Davanagere	
8.	Mandya	Southern Dry Zone
9.	Kodagu	
10.	Ballari	Northeastern Dry Zone
11.	Shivamogga	
12.	Chikkamagaluru	Southern Transition Zone
13.	Hassan	
14.	Udupi	Coastal Zone
15.	Dakshina Kannada	
16.	Dharwad	Northern Transition Zone
17.	Haveri	
18.	Uttara Kannada	Hill Zone

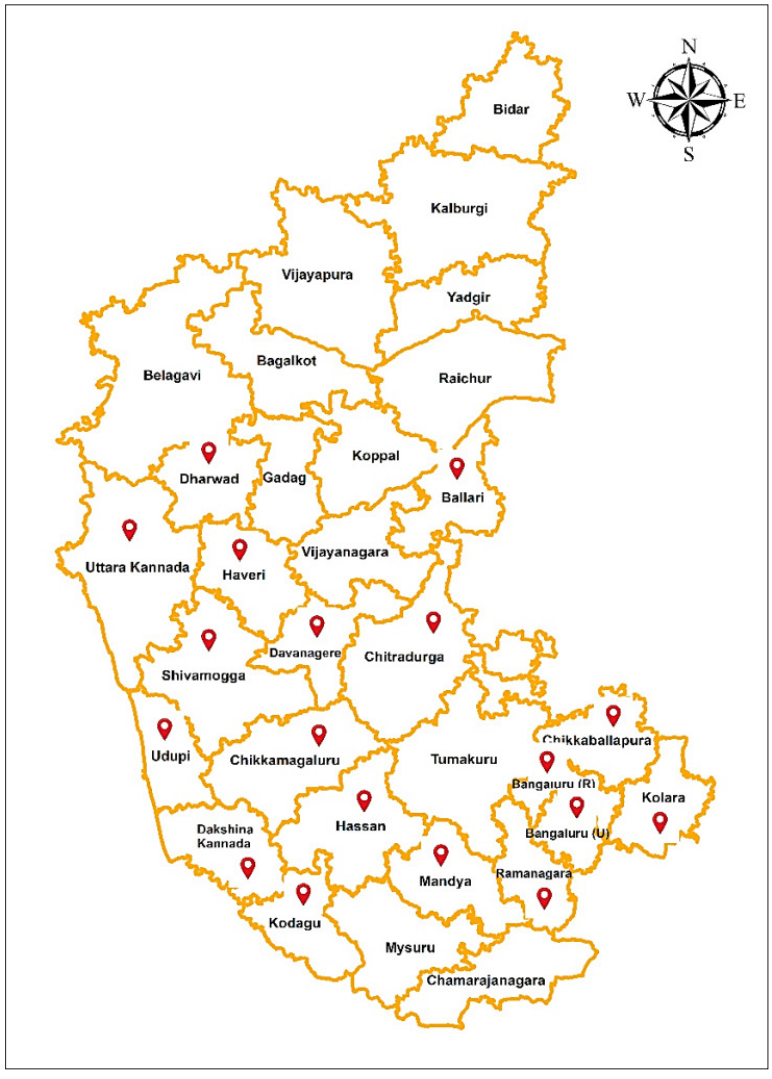

Fig.1. Map representing the districts covered during random thrips collection survey in Karnataka

RESULTS AND DISCUSSION

During the survey, approximately 2,500 thrips specimens were collected from Karnataka. Twelve terebrantian thrips species under 9 genera of the family Thripidae, are reported here as new distribution records for the state. Notes on their distribution and host plants are provided for all species.

New distributional records to Karnataka

Family Thripidae

Subfamily Panchaetothripinae

1. *Astrothrips globiceps* (Karny, 1913) (Fig.3. I)

Material examined: 20♀♀, INDIA, Karnataka, Uttara Kannada, Sirsi, 05.ii.2024

Female macroptera: Body dark brown; antenna VI segmented; head and lateral margin of cheeks covered with raised sculpture excluding collar. Pronotum with a network of raised sculpture on anterior two-thirds, a small transverse ridge confined to the median third of the posterior margin. Mesoscutum notched both anteriorly and posteriorly with two pairs of median long setae, their bases aligned transversely. Forewings with two submedian dark cross bands with apex white. Abdominal tergite I posterior margin with uniformly spaced strong vertical ridges; sternites II–VIII with three pairs of small setae on posterior margin.

Host plant: *Rauwalfia serpentine* (Indian snakeroot, Apocyanaceae)

Distribution: Maharashtra, Karnataka (new) (Tyagi *et al.,* 2024)

2. *Caliothrips quadrifasciatus* (Girault, 1927) (Fig.4. J)

Material examined: 02♂♂, INDIA, Karnataka, Shivamogga, 05.viii.2024

Male macroptera: Body dark brown; antenna VIII segmented. Head with ocellar hump; pronotum covered with polygonal reticulations with internal wrinkles; metanotum irregularly reticulated with median pair of setae near anterior margin. Forewing with two transparent cross bands, subapically and subbasally with apex dark brown. Lateral thirds of tergites with widely spaced transverse lines, bearing numerous wrinkles between them; tergite IX with three pairs of stout median setae; sternites IV–VII each with a small transverse glandular area.

Host plant: *Oryza sativa* (Paddy, Poaceae)

Distribution: Delhi, Himachal Pradesh, Jammu & Kashmir, Tamil Nadu, West Bengal, Karnataka (new) (Tyagi *et al.,* 2024)

3. *Panchaetothrips indicus* Bagnall, 1912 (Fig.2. A and B)

Material examined: 26♀♀, 02♂♂, INDIA, Karnataka, Shivamogga, Thirtahalli, 22.x. 2023

Female macroptera: Body brown; antenna VIII segmented, III–IV with simple sense cones. Legs with femora brown, gradually lightening toward the apices. Head with reticules without wrinkles; ocellar setae III outside ocellar triangle. Fore wings brownish grey with a distinct wedge-shaped white marking at the fork of the principal vein; first vein with long strong 12 setae, second vein setae absent. Abdominal tergites VII–VIII each possess a single seta situated on the median antecostal line; tergites VIII, IX and X with 2, 5 and 3 pairs of long strong setae; tergum X elongated tubiform; median split complete.

Male macroptera: All characters similar to female, except abdominal chaetotaxy. Abdominal pleurites VII–VIII with setae conspicuously stronger than in females; abdominal sternites III–VII each bearing a transverse, straight, ridge-like glandular area.

Host plant: *Curcuma longa* (Turmeric, Zingiberaceae)

Distribution: Arunachal Pradesh, Assam, Bihar, Goa, Haryana, Himachal Pradesh, Kerala, Manipur, Tamil Nadu, Uttar Pradesh, West Bengal, Karnataka (new) (Tyagi *et al.,* 2024)

Subfamily Thripinae

4. *Anascirtothrips arorai* Bhatti, 1961 (Fig.2. E and F)

Material examined: 4♀♀, 2♂♂, INDIA, Karnataka, Ballari, 10.xii.2024

Female macroptera: Body pale yellow; tergites II–VI with lateral brown markings. Antenna 7 segmented; ocellar pair III outside ocellar triangle. Mesonotal median and submedian setae arise in line; metanotal median setae arising behind anterior margin. Forewing upper vein with 3 distal setae. Abdominal tergites I–VIII with median pair of setae closely placed; complete posteromarginal comb on tergum VIII; tergites II–VIII with 6–10 rows of discal microtrichia on lateral thrids; IX with irregular rows of microtrichia on posterior half;

sternites II-VII on posterior margin with short rows of microtrichia between setal bases.

Male macroptera: Similar to female; sternites without glandular areas.

Host plants: *Bougainvillea* sp. (Paper flower, Nyctaginaceae); *Cassia siamea* (Kassod tree, Fabaceae)

Distribution: Delhi, Madhya Pradesh, Maharashtra, Punjab, Tamil Nadu, West Bengal, Karnataka (new) (Tyagi*et al.,* 2024)

5. *Exothrips ananthakrishnani* Bhatti, 1975 (Fig.3. K)

Material examined: 7♀♀, INDIA, Karnataka, Dakshina Kannada, Mangalore, 5.iii.2025

Female macroptera: Body pale yellow with distal end of the abdominal segment X dark brown; antenna VIII segmented. Head with three pairs of ocellar setae; pair III present between hind ocelli. Metanotal median setae pair near anterior margin of segment; with campaniform sensilla. Forewing first vein having 7 basal and 3 distal setae. Abdominal tergum I with median pair of setae strong and dark; II with 4 lateral marginal setae with anterior pair slender, present ventrolaterally; VI–VIII S4 setae reduced. Sternite VII S1 setae small compared to S2 setae.

Host plants: *Getonia floribunda* (Paper flower climber, Combretaceae); Grass (Poaceae)

Distribution: Tamil Nadu, Karnataka (new) (Tyagi *et al.,* 2024)

6. *Megalurothrips typicus* Bagnall, 1915 (Fig.3. G and H)

Material examined: 1♀, INDIA, Karnataka, Hassan, 5.iii.2024; 6♂♂, INDIA, Karnataka, Dakshina Kannada, Mangalore, 5.iii.2025

Female macroptera: Body and legs dark brown with tarsi pale yellow; antenna 8 segmented; III pale yellow; IV almost yellow with apical brownish tinge; V apical half brown. Ocellar pair III present on anterior margin of ocellar triangle; sub equal to distance between compound eyes. Metanotum with median setae arising at anterior margin; campaniform sensilla present. Forewing first vein with long row of setae bearing a prominent subapical gap followed by two setae apically. Tergum VIII with an irregular cluster of micro trichia anteromesad to spiracle; posteromarginal comb restricted laterally; sternite VII with posteromarginal median setae arising at margin.

Male macroptera: Body size smaller and paler than females; antennal segments III–IV longer and slender than females; posterior margin of tergite IX with a pair of short setiform processes.

Host plants: *Vigna unguiculata* (Cowpea, Fabaceae); *Ixora brachiata* (Deccan Ixora, Rubiaceae)

Distribution: Andhra Pradesh, Arunachal Pradesh, Assam, Madhya Pradesh, Maharashtra, Manipur, Tamil Nadu, Karnataka (new) (Tyagi *et al.,* 2024)

7. *Priesneriola oneillae* Ananthakrishnan, 1964 (Fig.3. L)

Materials examined: 3♀♀, INDIA, Karnataka, Ballari, 10.xii.2024

Female macroptera: Body yellow; head, terminal abdominal segments (VIII–X) dark brown. Antenna 6 segmented; III–IV with simple sense cones. Head with distinct transverse striations behind compound eyes; three pairs of ocellar setae present anterior to ocellar triangle; pronotal inner posteromarginal setae longer than outer pair; metanotum with median setae behind anterior margin. Forewing upper vein with two distal setae. Abdominal tergites VI–VIII S4 setae reduced; VIII with teeth like microtrichia laterally on posteromargin of tergite; sternite VII median setae present in front of posteromargin.

Host plant: Grass (Poaceae)

Distribution: Delhi, Maharashtra, Punjab, Tamil Nadu, Uttar Pradesh, West Bengal, Karnataka (new) (Tyagi *et al.,* 2024)

8. *Stenchaetothrips graminis* (Ananthakrishnan and Jagadish, 1967) (Fig. 2. C and D)

Material examined: 5♀♀, 2♂♂, INDIA, Karnataka, Dakshina Kannada, Mangalore, 5.iii.2025

Female macroptera: Body dark brown; antenna VII segmented; I brown; II brown with apical one third pale; III pale yellow; IV–V brown with slightly pale base; VI–VII brown. Ocellar setae III present on outer margin of ocellar triangle. Metanotum with median setae just behind anterior margin; covered with closely spaced longitudinal striations; without campaniform sensilla. Forewing with brown shaded area across second quarter of wing; base and apex pale. Abdominal pleurotergites with sharp teeth like projections; VIII posterormarginal comb complete.

Male macroptera: Similar to female; III–VII abdominal sternites bearing oval shaped pore plates.

Host plant: Grass (Poaceae)

Distribution: Kerala, Tamil Nadu, Karnataka (new) (Tyagi *et al.,* 2024)

9. *Thrips coloratus* Schmutz, 1913 (Fig.4. P)

Material examined: 5♀♀, INDIA, Karnataka, Chikkamagaluru, Kudremukh, 6.iii.2025; 4♀♀, INDIA, Karnataka, Hassan, Sakleshpura, 5.iii.2024

Female macroptera: Body yellow; X abdominal segment dark brown; tergites III–VIII with median dark area. Antenna 7 segmented; I–III pale yellow; IV–V almost brown with basal white area; VI–VII brown. Head with ocellar setae III arising outside ocellar triangle; postocular setae I and III subequal; metanotal median setae present close to anterior margin; campaniform sensilla present; forewing upper vein with three distal setae. Abdominal tergum II with 4 lateral marginal setae; VIII with complete but sometimes irregular posteromarginal comb; sternites III–VII bearing 12–25 discal setae.

Host plants: *Aegle marmelos* (Indian bael, Rutaceae); *Wendlandia* sp. (Rubiaceae)

Distribution: Assam, Delhi, Jammu & Kashmir, Himachal Pradesh, Maharashtra, Manipur, Meghalaya, Punjab, Rajasthan, Sikkim, Tamil Nadu, Uttar Pradesh, West Bengal, Karnataka (new) (Tyagi *et al.,* 2024)

10. *Thrips mirus* (Bhatti, 1967) (Fig.4. O)

Material examined: 5♀♀, INDIA, Karnataka, Bangalore, 7.iii.2025

Female macroptera: Body yellow; median half of abdominal tergites II–VIII with a patch of brown shade. Antenna 7 segmented; head and pronotum with transverse striations; ocellar setae III outside ocellar triangle. Metanotum with polygonal reticulations medially; longitudinal striations laterally; median setae behind anterior margin; campaniform sensilla present. Forewing first vein with 3 distal setae; abdominal tergite VIII with complete posteromarginal comb. Sternite II with 3–4 discal setae; III–VII bearing 14–18 discal setae.

Host plant: *Acronychia pendulata* (Indian Aspen, Rutaceae)

Distribution: Maharashtra, Tamil Nadu, Karnataka (new) (Tyagi *et al.,* 2024)

11. *Thrips levatus* Bhatti, 1980 (Fig. 4. M)

Material examined: 8♀♀, INDIA, Karnataka, Shivamogga, 27.x.2023; 9♀♀, INDIA, Karnataka, Bangalore South, 29.xi.2023; 12♀♀, INDIA, Karnataka, Kodagu, Chettalli, 13.xi.2024, 5♀♀, INDIA, Karnataka, Dakshina Kannada, Puttur

Female macroptera: Body pale yellow ; antenna 7 segmented; I pale brown; II yellow with brown shade; III–VII pale yellow (few specimens with brown shade); head with ocellar setae III within ocellar triangle just behind foreocellus; metanotum having transverse striations anteriorly; few polygonal reticulations medially; without campaniform sensilla; median setae far from anterior margin. Forewing with gray shade; upper vein with 7 basal and 3–6 distal setae. Tergum VIII posteromarginal comb absent medially; sternites without discal setae.

Host plants: *Carica papaya* (Papaya, Caricaceae); *Rosa* sp. (Rosaceae); *Passiflora edulis* (Passion fruit, Passifloraceae); *Cenchrus ciliaris*. (Buffel grass, Poaceae)

Distribution: Assam, Maharashtra, Odisha, Karnataka (new) (Tyagi *et al.,* 2024)

12. *Thrips speratus* zur Strassen, 1978 (Fig.4. N)

Material examined: 10♀♀, INDIA, Karnataka, Davanagere, 25.ii.2024, 3♀♀, INDIA, Karnataka, Kolar, 1.i.2025.

Female macroptera: Dark brown species with 7 segmented antenna; I–II, V–VII brown; III largely yellow with light grey shade; IV–V largely brown with pale base. Head with ocellar setae III within ocellar triangle, below foreocellus; pronotum with outer pair of posteromarginal setae half the length of inner pair; metanotum strongly reticulate with few internal wrinkles; median setae behind anterior margin. Forewing with base pale; upper vein with 3 distal setae; pleurotergites covered with ciliate microtichia; abdominal tergite VIII posteromarginal comb complete with fine short microtrichia; sternite III–VII with 17-23 with strong discal setae.

Host plants: *Calotropis gigantean* (Gaint milkweed, Apocynaceae), *Waltheria indica* (Sleepy morning, Malvaceae)

Distribution: Delhi, Tamil Nadu, Karnataka (new) (Tyagi *et al.,* 2024)

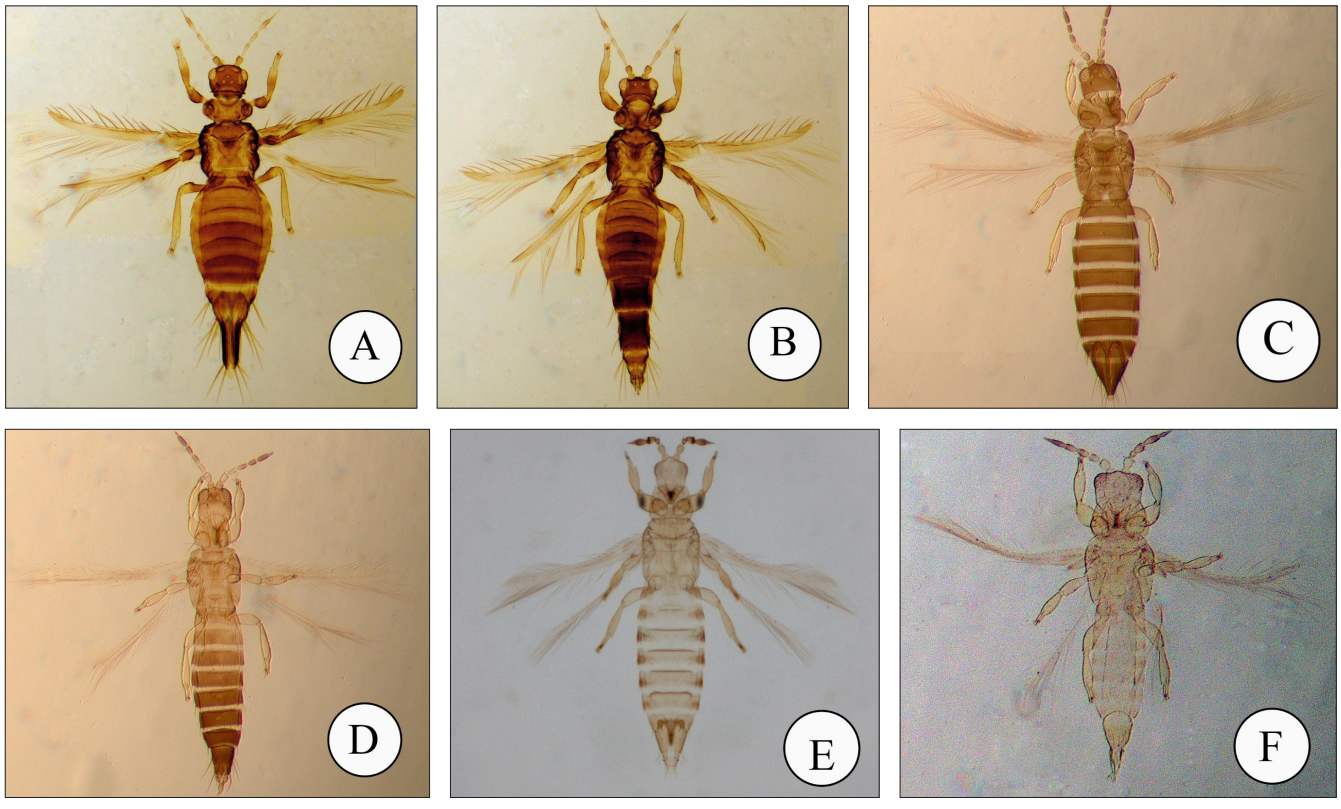

Fig.2. A-F: A and B. *Panchaetothrips indicus* Bagnall female and male; C and D. *Stenchaetothrips graminis* (Ananthakrishnan and Jagadish) female and male; E and F. *Anascirtothrips arori* Bhatti female and male

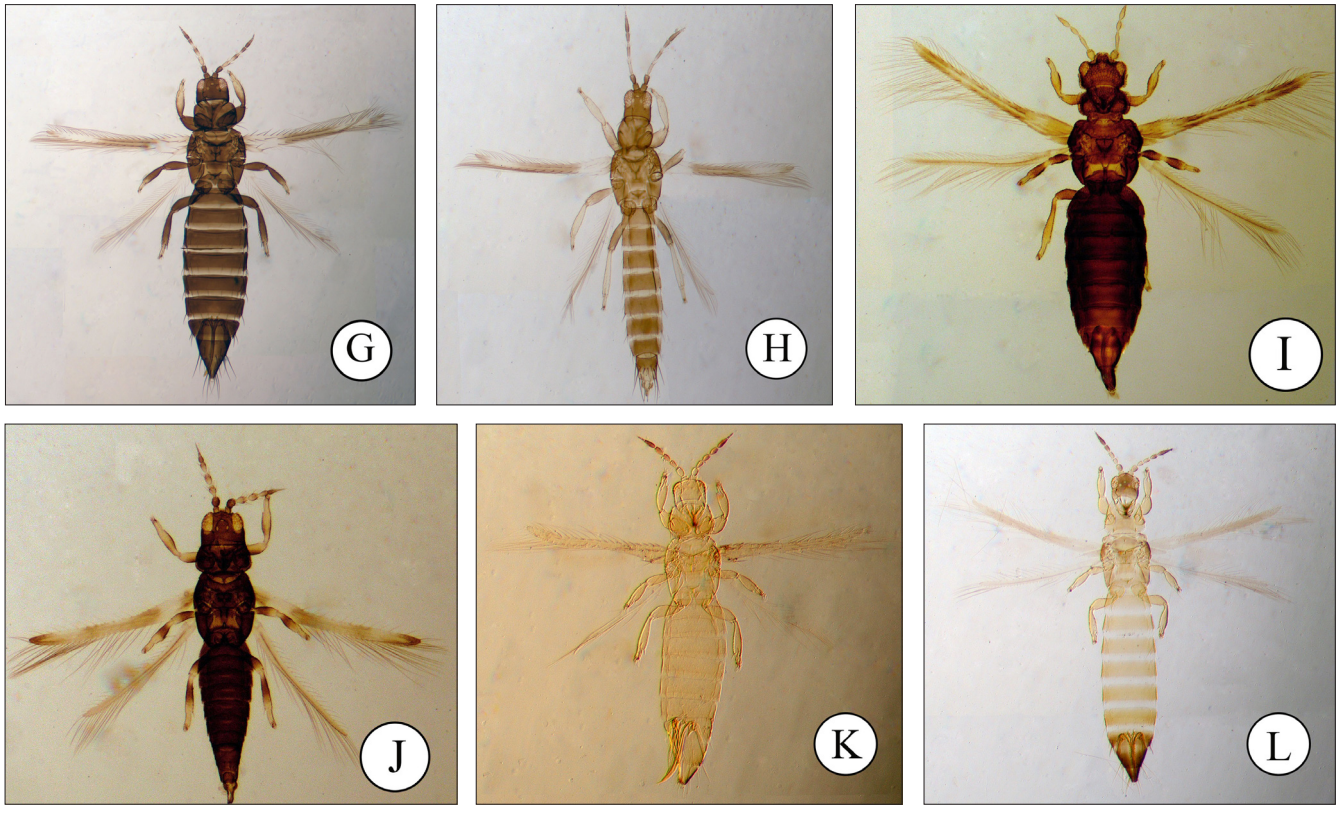

Fig.3. G-L: G and H. *Megalurothrips typicus* Bagnall female and male; I. *Astrothrips globiceps* (Karny); J. *Caliothrips quadrifasciatus* (Girault); K. *Exothrips ananthakrishnani* Bhatti, L. *Priesneriola oneillae*, Ananthakrishnan

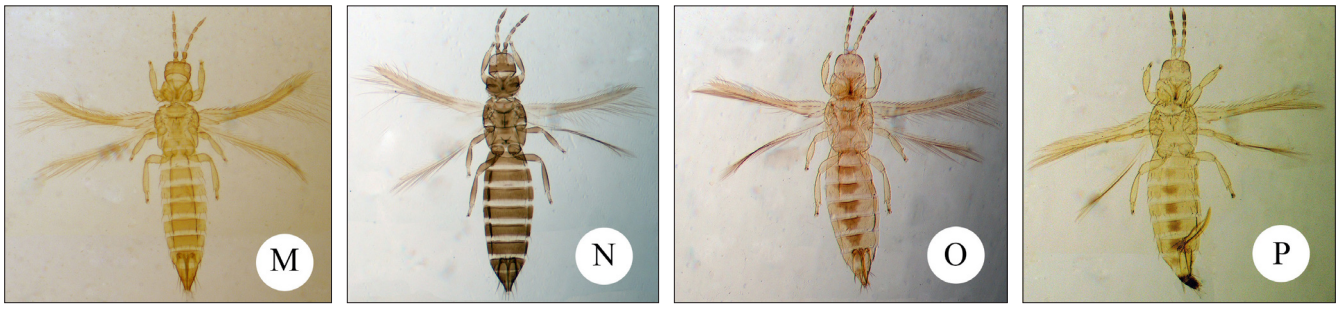

Fig.4. M-P: M. *Thrips levatus* Bhatti; N. *Thrips speratus* zur Strassen;
O. *Thrips mirus* (Bhatti); P. *Thrips coloratus* Schmutz

CONCLUSION

The study has added 12 thrips species of the family Thripidae, representing two subfamilies *viz.,*Panchaetothripinae and Thripinae and 9 genera to the fauna of Karnataka, thereby increased the known thysanopteran diversity of the state to 94 species. Our report adds three new genera namely, *Priesneriola, Panchaeto thrips* and *Anascirtothrips* to the fauna of Karnataka.The salient findings from our survey highlight the need for further exploration and study of thrips diversity from Karnataka.

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AUTHORS CONTRIBUTIONS

K.M.S. – collection, processing, conceptualisation, writing the original draft, imaging and editing; J.N.H., R.R.R, L.H., K.R., B.G.N. and S.R. –collecting samples and correcting manuscript. All authors have supervised and agreed for publishing the manuscript.

CONFLICT Of INTEREST

No potential conflict of interest was reported by the author(s).

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