

Description of Three Genera (Thripidae:Thysanoptera) from Azad Jammu and Kashmir (Pakistan)

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Abstract: Thripidae with three genera including *Scirtothrips*, *Megaleurothrips* *Taeniothrips* with their species reported from Azad Jammu and Kashmir. The keys are provided for separation of genera. The collected specimens have been identified and described in detail with keys and characters for identification along with illustration.

Key words: Thripidae, *Scirtothrips*, *Megaleurothrips*, *Taeniothrips*

Introduction

Thripidae is the largest family in Terebrantia. It is cosmopolitan in distribution and found on wide variety of flora. Some are beneficial pollinators while others cause significant economic damage.

The systematics of family Thripidae have been studied by several workers. Ali (1976) identified 9 species of Thripidae from Pakistan. Bhatti (1978a) revised 135 nominal species of the genus *Taeniothrips* with 6 related genera, while in (Bhatti, 1978b) he revised the Karny's species of *Anaphothrips* from the Oriental region. Pitkin (1978) revised Australian species of *Anaphothrips*. Ananthkrishnan and Sen (1980) provided keys for all the higher and lower taxa of Thysanoptera along with the distribution and host plants of 647 species from India. Kudo (1991) recorded 5 genera of tribe *Sericothripini* from Japan. Palmer (1992) described 91 species of the genus *Thrips* with 8 new species from Pacific to Pakistan. Xu (1996) reported 34 species belonging to 16 genera of 3 families from 16 genera all from ornamental plants within Northeast China. Akram (1999) identified and described 40 species of family Thripidae from Pakistan.

In the present work species of *Scirtothrips*, *Megaleurothrips* *Taeniothrips* have been identified. As these species are known in world but here explored first time. They exhibited some variation from known species, so these have been described in detail.

Materials and Methods

They were collected from Azad Jammu and Kashmir during 2001-2002 from various crops, vegetables, trees, ornamental plants shrubs, by dusting them on white paper sheet. The specimens were place in 75% alcohol with a drop of glycerin. The slides were prepared according to Palmer *et al.* (1992). The thrips with their body parts such as antennae, wings and legs expanded were mounted in Hoyer's medium and cover slip was placed on it. For identification the published description were followed. Illustration were made by projecting the specimens on

21 inches colour T.V. through Swift Microscope M 3300 with camera Lucida at various magnifications of 10X, 40X, 100X and 400X.

Results and Discussion

Key to the tribe of thripinae (Thripidae) of Azad Jammu and Kashmir

1. Abdominal segments with dense rows of microtrichia Sericothripini
- . Abdominal segments without dense rows of microtrichia Thripini

Tribe sericothripini

It is represented in Azad Jammu and Kashmir by one genus.

Genus *Scirtothrips* Shull

1909 *Scirtothrips Shull*, Ent. News, 20 (5): 222.

Comments

The collected female specimens are similar to published description (Stannard, 1968; Palmer *et al.*, 1992; Saeed and Yousof, 1994 and Akram, 1999) of this species.

Scirtothrips dorsalis Hood

1919 *Scirtothrips dorsalis* Hood, Insect. Inscit. Menstr., 7: 90-91.

1919 *Scirtothrips minutissimus* Bagnall, Ann. Mag. Nat. Hist. (9) 4: 260.

Female

Body generally pale yellow. Eyes black; ocelli whitish. Antennal segments 1-2 pale; 3-8 uniformly dark grey. Mouth cone dark reddish-brown at tip. Legs pale; wings pale grey. Abdomen pale yellowish-brown; antecostal ridges of tergites and sternites dark brown with small associated brown area.

Head

Head broader than long, dorsum with inconspicuous setae; postocular and ocellar triangle with closely spaced transverse lines of sculpture. Cheeks converge posteriorly. Eyes large, slightly protruding; ocellar setae 2-pairs with inner pair at top of fore ocellus; interocellar between posterior ocelli; postocular 2 pairs. Antennae 8-segmented; 3-6 somewhat slender, 3 as long as 4 but shorter than 6; 3-4 with forked sense cones, style 2-segmented. Mouth cone long, reaching mid of prosternum.

Thorax

Pronotum broader than long, transversely striated, few scattered discal setae. Posteroangular setae 1 pair; posteromarginal 3 pairs, 2nd well-developed. Pterothorax broader than long; meso and meta furca with spinula; MNS striated, MMNS slightly behind lateral pairs, later longer; CPS absent. Forewings broader at base, narrowing towards apex; costal setae 27-29; upper vein 9 (3+3+3) and lower vein 2-3 setae; fringe cilia straight. Legs similar with small bristle.

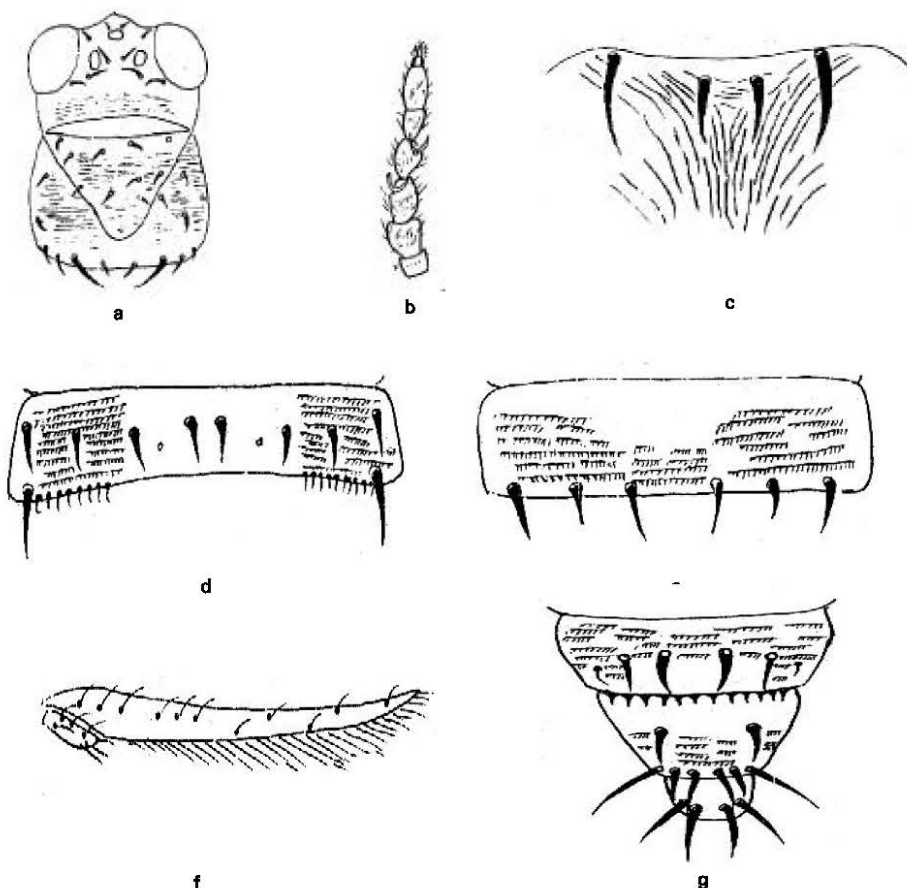


Fig. 5: Scirtothrips dorsalis

a. head and pronotum b. antenna c. MNS

d. T₄ e. S₄ f. forewing g. Terminal abdominal segments

Abdomen

Abdominal segments with pubescence of minute microtrichia. T₁-T₇ with comb of microtrichia, absent medially; microtrichia present medially on T₈ and T₉. T₈ with posteromarginal comb complete. T₃-T₈ with a basal dark transverse line medially, followed by a light brown blotch. Sternites without discal setae; covered with rows of microtrichia except anteromedially; median setae on S₇ arising at margin. Ovipositor well-developed.

Comments

The collected female specimens conforms to published descriptions (Mound, 1967, 1972; Stannard, 1968; Ananthkrishnan and Sen, 1980; Saeed and Yousuf, 1994) of this species.

Material Examined: AJK 2 ♀, 04-XII-2001

Habitat: Wheat (*Triticum aestivum*)

New Record

The female specimens have been recorded by Akram (1999) from Pakistan, now for the first time it is reported from Azad Jammu and Kashmir.

Tribe thripini

It is represented by 2 sub tribes in Azad Jammu and Kashmir.

Key to the subtribes of thripini of Azad Jammu and Kashmir

1. Prothorax without well-developed setae; wing setae short and weak
..... Anaphothripina
- . Prothorax with well-developed setae; wing setae prominent Thripina

Subtribe anaphothripina

It is represented in Azad Jammu and Kashmir by 2 species under 2 genera. Genus *Anaphothrips* Uzel

1895 *Anaphothrips* Uzel, Koniggratz: 1-472.

1943 *Othinanaphothrips* Crawford, Proc. Ent. Soc. Wash., 45: 151-153.

Comments

The collected specimens are similar to published descriptions (Pitkin, 1978; Ananthakrishnan and Sen, 1980; Sen *et al.*, 1988; Kudo, 1989; Palmer, 1992; Akram, 1999) of this genus.

Anaphothrips sudanensis Trybom

1911 *Anaphothrips sudanensis* Trybom, Ed. L.A. Jagerskiold Pt 4, No. 19 (16).

1925 *Anaphothrips bicolor* Morgan, Florida, Ent., 9: 4.

1925 *Anaphothrips transvalensis* Faure, S. African J. Nat. Hist., 5: 150.

1926 *Anaphothrips alternans* Bagnall, Ann. Mag. Nat. Hist., 18: 642.

1936 *Anaphothrips piercei* Moulton, Philip. J. Agric., 7: 265.

Female

Body distinctively bicoloured, yellow to dark brown. Head dark brown; eyes and ocelli yellow to brown. Antennae yellow to brown; 1-2 and 5-8 brown; 3-4 and base of 5 yellow. Mouth cone light to dark brown. Thorax brown. Legs yellow to brown. Wings yellow; veinal setae pale yellow. Abdominal segments 1-2 and 6-11 brown, 3-5 yellow. Ovipositor brown.

Head

Head rounded, broader than long, striated posteriorly. Eyes well-developed, ocellar setae 3-pairs, 3 at the margin of ocellar triangle; postocular 5-pairs; 1-3 pairs in a transverse row, 4

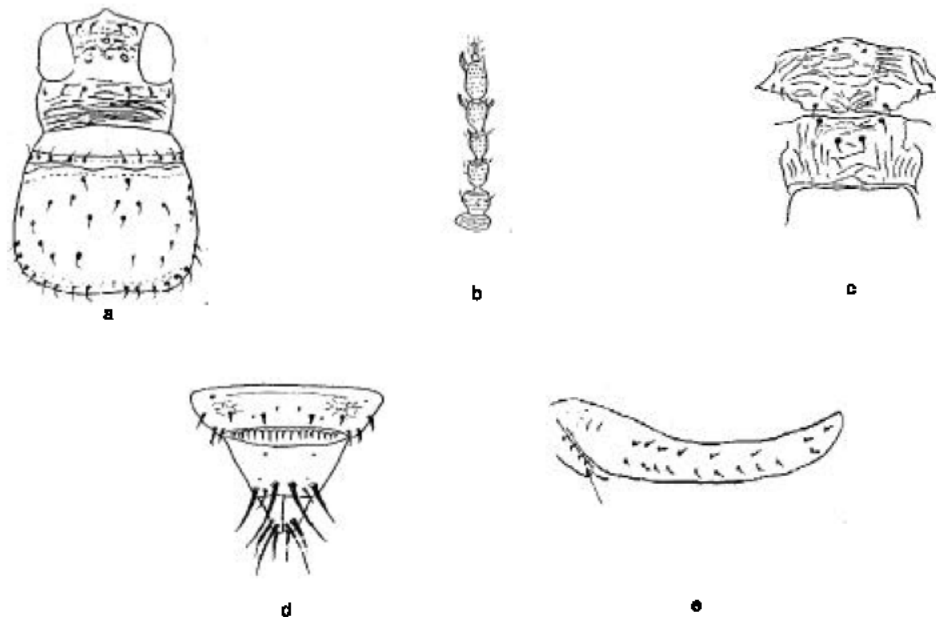


Fig. 8: *Anaphothrips sudanensis*

- a. head and pronotum
- b. antenna
- c. meso- and metanotum
- d. Terminal abdominal segments
- e. forewing

behind them and 2 longer than all. Antennae 8-segmented; 2 broader; 6 longest; 3-5 equal in length with 4 rows of microtrichia; 6 with 3 rows; 3-4 with forked sense cones. Mouth cone long, pointed; maxillary palpi 3-segmented.

Thorax

Pronotum broader than long, smooth, without any long setae, with 40-53 very minute setae in all; anteroangular and posteromarginal 4-pairs each small and equal in a row. Mesoscutum with transversely anastomosing striate; metascutum irregularly striate; CPS present; MMNS on anterior third. Mesosternum 23-32 and metasternum 14-22 setae. Forewings with 17-21 costal setae, upper vein with 10-12 setae, lower vein with 8-10 setae; fringe cilia wavy; scale with 3-5 setae.

Abdomen

Abdominal tergum striated, smooth with discal setae. T_2 - T_8 transversely striate on lateral fourth only; T_2 - T_7 with small serration laterad of b_2 at posterior margin; T_8 comb complete, with fine microtrichia. Sterna smooth, with circular patches; S_3 - S_7 with 3 pairs of posteromarginal setae. Ovipositor well-developed as long as pronotum.

Comments

The collected female specimens are similar to published descriptions (Kudo, 1989; Akram, 1999) only differ in, legs yellow to brown; abdominal segments 3-5 yellow.

Material Examined: AJK 2 ♀, 25-VII-2001

Habitat: Joware (*Sorghum vulgare*)

New Record

Akram (1999) recorded from Pakistan, now it has also been recorded from AJK.

***Dendrothripoides ipomoeae* Bagnall**

1923 *Dendrothripoides ipomoeae* Bagnall, Ann. Mag. Nat. Hist., (9) 12: 624-625.

1925 *Tryphactothrips mediosignatus* Karny, Bull. Del. Proefst. Medan-Sumarta., 23: 34-37.

1926 *Tryphactothrips mundus* Karny, Mem. Dept. Agric. India, Ent. 9: 190-192.

1930 *Heliothrips ipomoeae* Bondar, Cor. Agric. Soc. Bahiana Agric. 8: 345-347.

Comments

The collected single female specimen conforms with the published descriptions (Kudo, 1977 and Akram, 1999), but differ in ocellar setae 2 pairs, sense cones on antennal segment 4 reaching apex of 5, in this species.

Subtribe thripina

It is represented in Azad Jammu and Kashmir by two genera.

KEY TO THE GENERA OF THIRIPINA OF AZAD JAMMU AND KASHMIR

1. Head rectangular; cheeks slightly arcuate; T8 with comb *Megalurothrips* Bagnall
- . Head elongate; cheeks barely bugled; T₈ without comb *Taeniothrips* Amyot and Serville

Genus *Megalurothrips* Bagnall

Megalurothrips Bagnall, Ann. Mag. Nat. Hist., 15: 589.

Comments

The collected specimens are similar to the published description of (Ananthakrishnan and Sen, 1980; Sen *et al.*, 1988; Palmer, 1992; Akram, 1999) of this genus.

***Megalurothrips typicus* Bagnall**

1915 *Megalurothrips typicus* Bagnall, Ann. Mag. Nat. Hist. 8: 590-591.

1938 *Taeniothrips centriscopinus* Priesner, Treubia, 16: 474.

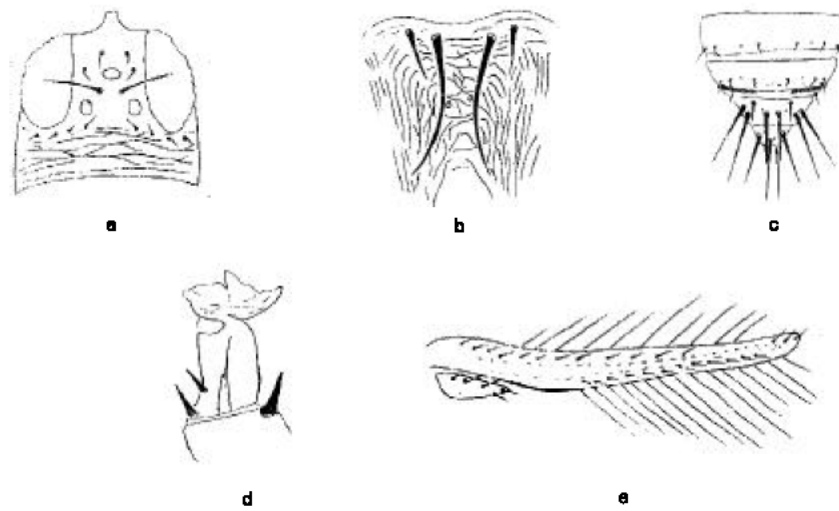


Fig. 13. *Megalurothrips typics*
a. head b. MNS c. Terminal
abdominal segments d. fore tarsus
e. forewing

Female

Body dark brown. Head dark brown; eyes yellowish brown; ocelli pale yellow. Antennal segments 1-2 and 4-8 dark brown; 3 pale yellow. Thorax and legs dark brown; tarsi yellow. Forewings yellow at base, brown at apex; venal setae brown. Abdomen dark brown, T₉-T₁₀ with dark brown setae. Ovipositor orange brown.

Head

Head broader than long, rectangular, longitudinally striated behind the ocellar triangle. Cheeks slightly arcuate. Ocellar setae 3 pairs, 1-2 equally long, 3 twice long and broad than rest; postocular 4-pairs, 2 and 4 longer than 1 and 3. Antennae 8-segmented; 3-6 with rows of microtrichia; 3-4 with forked sense cones; 3-4 and 6 equal, longer than rest. Mouth cone rounded, short; maxillary palpi 3-segmented, 1 broader and longer than rest.

Thorax

Pronotum broader than long, striated, discal setae present. Anteroangulars 2 while anteromarginal 3 pairs; postermarginal present but short; posteroangular 2 pairs. MNS broadly striated laterally and transversely diverging posteriorly; MMNS behind the anterior margin; CPS present. Mesosternum with spinula. Forewings with one cross band, 24 costal, upper vein 16 (13+3), lower vein 15 setae, middle to apex; fringe cilia wavy.

Abdomen

Abdominal terga smooth medially, median setae short and apart. One pair of CPS present on all segments; segments 3-7 with 3 discal setae, 3 longer than 1-2 on segments 2-5. T₈ with complete long based comb at posterior margin, interrupted medially; T₉-T₁₀ with long setae. Last segment broader and curved; T₂-T₇ with 1 pair of lateral and 1 pair of posteromarginal setae. Pleurotergite with 1 pair of posteromarginal setae. Sternite striated, S₃-S₇ with 3 pairs of posteromarginal setae, pleurosternite with 1 pair of posteromarginal setae with flanges. Ovipositor well-developed.

Comments

The collected specimens are similar to published descriptions (Ananthakrishnan and Sen, 1980; Akram, 1999) but slightly vary in postocular setae 4-pairs; MNS broadly striated; forewings lower vein 15 setae.

Material Examined: AJK 2 ♀, 14-VII-2001

Habitat: Kamila (*Mallotus philipinensis*)

New Record:

Akram (1999) recorded from Pakistan, now it has also been recorded from Azad Jammu and Kashmir.

Genus *Taeniothrips* Amyot and Serville

1843 *Physothrips* Amyot and Serville, Hist Nat. Ins. Hemip., 644.

1843 *Taeniothrips* Amyot and Serville, Hist Nat. Ins. Hemip., 644.

Comments

The collected single specimen is similar to the published description (Stannard, 1968; Palmer, 1992) of this genus.

Taeniothrips inconsequens Uzel

1895 *Physopus inconsequens* Uzel, Mongr. Ord. Thy. Kong. Bh., 117.

1916 *Taeniothrips inconsequens* Uzel, Ann. Mag. Nat. Hist. Ser., 17: 216.

Female (Macropterous)

Body dark brown, with yellowish margins on both sides. Head yellow anteriorly, dark brown behind the eyes, with dark striations. Eyes orange brown, ocelli orange yellow; antecellar setae dark brown. Antennal segments dark brown. Mouth cone brown at end. Thorax brown medially, yellowish with outer margins. Forewings, veinal setae dark brown. Legs yellow with slight brown

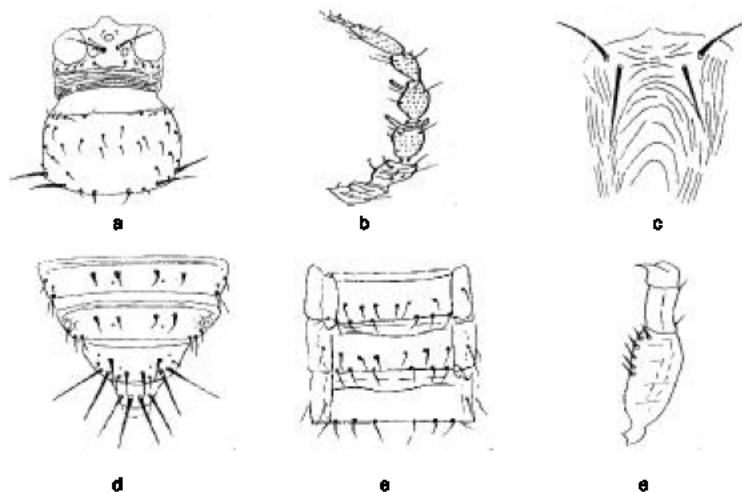


Fig. 14: *Taeniothrips inconsequens*

- a. head and pronotum b. antenna
- c. MNS d. terminal abdominal segments
- e. S_3 - S_5 f. hind tibia

Head

Head broader than long, elongate, bulged behind eyes, striated posteriorly. Eyes large; cheeks smaller than eyes; ocellar setae 2 pairs; interocellar within the ocellar triangle and very markings. Abdomen yellow, dark brown medially. T_9 - T_{10} dark brown setae. Ovipositor yellowish brown.

long, 5 times longer than other; postocular 6-pairs. Antennae 8-segmented; 3-6 with rows of microtrichia; 5 and 6 broadly joined; 3-4 with forked sense cones. Mouth cone large, reaching middle of prosternum; maxillary palpi 3-segmented, 1 broader and longer than rest.

Thorax

Pronotum broader than long; anteromarginal 4 pairs; posteroangular 2 pairs and long; discal setae well-developed arranged in rows transversely. Mesonotum striated; MNS striated, absent medially with few transverse striations; MMNS behind anterior margin, situated at a distance from each other; CPS absent. Forewings with microtrichia, 21 costal, upper vein 8 (5+3), lower vein 4 setae; scale 4 setae; fringe cilia wavy. Hind legs large, tibia with row of 6 setae; tarsi with apical tooth, 2-segmented.

Abdomen

Abdominal terga striated, median setae intermediately far apart. T_8 without posteromarginal comb. T_{10} split to mid. Sternites 3-4 with 3-pairs of discal and 3 pairs of posteromarginal setae. Ovipositor well-developed.

Comments

The collected female specimens are similar to published descriptions (Stannard, 1968; Palmer, 1992) but differ in all antennal segments dark brown, tarsi yellow; abdominal sterna 3-4 with 3 pairs of accessory setae; T₈ without posteromarginal comb.

Male (Macropterous)

Antennal segments 1-2 light brown. Costal setae 18. Glandular are absent on sterna. Male genitalia yellowish.

Comments

The collected single male specimen is similar to published descriptions (Stannard, 1968; Palmer, 1992) but differ in antennal segments 1-2 light brown; tarsi yellow; abdominal sterna 3-4 with 3 pairs of accessory setae.

Material Examined: AJK 2 ♀, 30-IX-2001

AJK 1 ♀, 30-IX-2001

Habitat: Sanatha (*Dodena viscosa*)

New Record:

The genus has been recorded for the first time from Azad Jammu and Kashmir (Pakistan).

Keeping in view the important role of thrips, the work on systematics in Pakistan has been very scarce, except for few past workers (Ali, 1976; Saeed and Yousuf, 1994; Akram *et al.*, 1999, 2000, 2001) who explored thrips from Pakistan, however the thrips fauna of Azad Jammu and Kashmir, is still totally unexplored.

Thus keeping the multifarious role of thrips the present study was carried out to investigate the distribution, host plant and taxonomy of Thysanoptera from Azad Jammu and Kashmir, keeping in view that this study will help the future workers to explore the fauna of thrips.

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