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VALIDATION OF FIVE NEW SPECIES OF THE GENUS *TENTHREDO* LINNAEUS, 1758 FROM THE INDIAN HIMALAYAS (INSECTA: HYMENOPTERA: SYMPHYTA: TENTHREDINIDAE)

by

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Abstract

Five new species of the genus *Tenthredo* Linnaeus, 1758 are described and illustrated from the Indian Himalayas. Which includes *Tenthredo bandata* sp.nov., *T.clavata* sp.nov., *T. fuscata* sp.nov., *T. kalamunitopensis* sp.nov. & *T. nigrofuscata* sp.nov. While compiling the Indian Sawflies Biodiversity (Vol. I), Saini (2007) included these new species only in the key whereas the detailed descriptions and diagnostic combinations of these new species were not provided in that compilation.With the addition of these five new records, the genus *Tenthredo* is now represented by 196 species from India. The genitalia are illustrated, and all these species are distinguished from related species. The population variation, if any, has also been discussed.

Keywords : Hymenoptera, Symphyta, Tenthredinidae, *Tenthredo* Linnaeus, Himalayas, India.

Introduction

Though the taxanomic work on Indian *Tenthredo* is quite scattered, still Malaise's (1945) paper is such an exhaustive study that, in addition to compiling almost all the earlier works for south-east Asia, adds 18 new species of this genus to the Indian fauna. The only additional Works since Malaise (1945) are that by Muche 1982, 1983,1986; Shinohora 1988, 1998 & Haris 2004 who made an addition of 11 new species to the earlier census of Indian *Tenthredo* and brought the total number of described species from this country to 90. It was late in the 20th century, that Saini and his co-workers (1985-2006) made some major contributions to this genus and to this date the picture is completely changed with 191 valid species documented from this region. This includes 91 new species recorded by Saini & his co-workers alone, 33 species as the first record. Other important works prior to Malaise 1945 includes Radoszkowsky, 1871 (2 sps.); Cameron, 1876, 1877, 1899, 1902 (13 sps.); Smith, 1878 (5 sps.); Kirby, 1882 (2 sps.); Mocsary, 1883 (1 sp.); Jakowlew, 1891 (3 sps.); Konow, 1898, 1900, 1903, 1906, 1907, 1908 (30 sps.); Matsumara, 1912 (1 sp.); Rohwer, 1915, 1916,1921 (4 sps.); Forsius, 1931, 1935 (2 sps.); Benson, 1941 (1 sp.); Muche, 1982, 1983, 1986 (4 sps.); Shinohara 1988, 1998 (3 sps.); Harris 2004 (4 sps.).

At present *Tenthredo* Linnaeus is a complex genus with almost 979 species on record (Taeger *et al*. 2011). Out of these 979 species 439 species have been assigned to its 19 subgenera which include subgenus *Tentredo* (100), *Adungia* (4), Casipteryx (3), *Cephaledo* (16), *Dorhetteryx* (26), *Elinopsis* (1), *Elinora* (54), *Endotethryx* (3), *Eurogaster* (25), *Maculedo* (7), *Metallopeus* (17), *Olivacedo* (21), *Paratenthredo* (6), *Peus* (4), *Propodea* (2), *Temuledo* (28), *Tenthredella* (93), *Tenthredina* (18) & *Zunuledo* (11).

Material and Methods

Material for the present study was collected during different field trips to the high altitude regions of Uttarakhand. All the collections were

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made with the help of sweeping hand nets. For this region the most appropriate collection time is the month of June i.e. the pre-monsoon time.

The morphological terminology proposed by Ross (1945), Viitasaari (2002) has generally been employed to describe new species. Relative lengths used in species discrimination are the actual ratio proportions and the various measurements are made with the aid of slide micrometer and oculometer. Body length is considered from the anterior tip of head to the abdominal apex (excluding antenna, mouth parts, female and male genitalia). The specimens were examined with an Olympus SZX7 binocular stereoscope microscope.

GENUS *TENTHREDO* LINNAEUS, 1758

Tenthredo Linnaeus, 1758: 343. Type species: *Tenthredo scrophulariae* Linnaeus 1758; subsequently designated by Latreille, 1810: 107.

Parastatis Kirby, 1881: 107.Type Species: *Parastatis indica* Kirby; by monotypy. Synonymy by Malaise, 1945: 187.

Dipteromorpha Kirby, 1882: 324. Type species: *Macrophya rotundiventris* Cameron; by monotypy. Junior homonym of *Dipteromorpha* Felder, 1874 discovered and synonymized by Malaise, 1945: 179.

Labidia Provancher, 1886: 21. Type species: *Labidia Columbiana* Provancher (= *Allantusopimus* Cresson); by monotypy. Synonymy by Ross, 1937: 105.

Jermakia Jakowlew, 1891: 58-59. Type species: *Allantus cephalotes* Jakowlew (= *A. sibiricus* Kriechbaumer); by monotypy. Synonymy by Goulet 1996: 16.

Ischyroceraea Kaier, 1898:67-68. Type species: *Ischyroceraea hyperborean* Kaier (= *Eniscia arctica* Thomson); by monotypy. Synonymy proposed by Goulet 1996: 16.

Rethrax Cameron, 1899: 33. Type species: *Rethrax carinata* Cameron (= *Tenthredo cyanata* Konow); by monotypy. Synonymy by Malaise, 1945: 187.

Fethalia Cameron, 1902: 439. Type species: *Fethalia nigra* Cameron (= *Tenthredo opposita* Smith); by monotypy. Synonymy by Malaise, 1945: 187.

Peus Konow, 1903: 315. Type species: *Peus privus* Konow; by monotypy. Synonymy by Goulet 1996: 16.

Clydostomus Konow, 1908: 19. Type species: *Clydostomus cestatus* Konow; subsequently designated by Rohwer, 1911: 77. Synonymy by Goulet 1996: 16.

Tenthredina Rohwer, 1910: 116.Type species: *Tenthredo flavida* Marlatt [= *Tenthredo fortunei* (Kirby)]; by original designation. Synonymy by Malaise, 1945: 187.

Tenthredella Rohwer, 1910: 117. Type species: *Tenthredo atra* Linnaeus; by original designation. Synonym proposed by Malaise, 1945: 187.

Eniscia; name incorrectly applied by Rohwer, 1911: 214 (not Thomson, 1870: 299).

Tenthredo (*Labidia*); rank by Rohwer, 1913: 223.

Zamacrophya Rohwer, 1912: 221-222. Type species: *Zamacrophya nigrilabris* Rohwer (= *Tenthredo ocampa* Ross); by original designation. Synonymy by Malaise, 1945: 187.

Metallopeus Malaise, 1934: 453-454. Type species *Tenthredo clypeata* Cameron; by original designation. Synonymy by Goulet 1996: 16.

Jakovleviella Malaise, 1937: 48. Type species: *Macrophya pusilloides* Malaise; by original designation. Synonymy by Goulet 1996: 16.

Propodea; replacement name for *Dipteromorpha* Kirby, 1882 proposed by Malaise, 1945: 179. Malaise illegally designated another genotype (*Tenthredo fentoni* Kirby). Because both type species are in the same genus created by Malaise, there is no nomenclatural problem involved. Synonymy by Goulet 1996: 16.

Adungia Malaise, 1945: 170. Type species: *Adungia kingdonwardi* Malaise; by monotypy. Synonymy by Goulet 1996: 16.

Ebba Malaise, 1945: 181. Type species: *Ebba soederhellae* Malaise; by monotypy. Synonymy by Goulet 1996: 16.

Elinora Benson, 1946: 35. Type species: *Allantus dominiquei* Konow; by original

designation. Synonymy by Zhelochovtsev, 1988: 218.

Eurogaster Zirngiebl, 1953: 236. Type species: *Rhogogastera arctica* Kaier; by monotypy. Synonymy by Zhelochovtsev, 1988: 219.

Cuneala Zirngiebl, 1956: 325. Type species: *Cuneala tricolor* Zirngiebl (= *Allantus dominiquei* Konow); by monotypy. Synonymy by Zhelochovtsev, 1988: 218.

Elinopsis Lacourt, 1986: 13. Type species: *Allantus vittatus* Kriechbaumer; by original designation. Synonymy by Goulet 1996: 16.

Tenthredo (*Elinora*); rank by Zhelochovtsev, 1988: 218.

Tenthredo (*Eurogaster*); rank by Zhelochovtsev, 1988: 219.

Tenthredo (*Zonuledo*) Zhelochovtsev, 1988: 217. Type species: *Tenthredo zonula* Klug; by original designation.

Tenthredo (*Cephaledo*) Zhelochovtsev, 1988: 218. Type species: *Tenthredo costata* Klug, by original designation.

Tenthredo (*Temuledo*) Zhelochovtsev, 1988: 219. Type species: *Tenthredo temula* Klug; by original designation.

Tenthredo (*Olivacedo*) Zhelochovtsev, 1988: 220. Type species: *Tenthredo olivacea* Klug; by original designation.

Tenthredo (*Maculedo*) Zhelochovtsev, 1988: 222. Type species: *Tenthredo macula* Geoffroy; by original designation.

Murciana Lacourt, 1988: 310. Type species: *Absentia abatae* Togashi; by monotypy. Synonymy by Goulet 1996: 17.

Absentia Togashi, 1990: 182. Type species: *Absentia abatae* Togashi; by monotypy. Synonymy by Goulet 1996: 17.

Casipteryx Taeger, 1991: 72. Type species: *Allantus roborowskyi* Jakowlew; by original designation. Synonymy by Goulet 1996: 17.

Paratenthredo Taeger, 1991: 78. Type species: *Tenthredo frauenfeldii*; by original designation. Synonymy by Goulet 1996: 17.

Sainiella Lacourt, 1997: 380. Type species: *Tenthredo felderi* Radoszkovsky, 1871: 196; by original designation. New Synonymy by Saini, Blank & Smith 2006

Generic Diagnosis:

Average length of adult varies in females (7.3-18mm) and males (6.2-15.5mm). Antenna of variable length, may be filiform, tapering, compressed or incrassate before or towards apex, antennal segment 3 shorter, equal or longer than 4; antennal crest usually high; clypeus shallowly or deeply, roundly or sub squarely incised, sometimes truncate or even tridentate; longer than broad, as long as broad or broader than long flat and tongue like labrum with convex, rounded or somewhat pointed anterior margin; malar space inconspicuous to even more than 3x diameter of lateral ocellus; mandibles quadridentate; frontal area above, below or at level of eyes; supraantennal tubercles raised or low lying, confluent with or abruptly cut off from frontal ridges; median fovea shallow to deep, with or without longitudinal carina; inner margins of eyes converging downwards (more strongly in males) and their lowest extremities clearly directed towards clypeus; lower interocular distance mostly less than eye length; circum-, inter- and postocellar furrows inconspicuous or deep; lateral furrows superficial or sharp, parallel or diverging posteriorly; postocellar area flat or raised, with or without longitudinal carina, ratio of its length and breadth varies (generally more broad in males than females); head narrowing or dilated behind eyes; occipital carina present mostly extending to top of the head; mesoscutellum flat, pyramidally or roundly raised, sometimes with thorn-like apex, appendage with or without carina; mesosternum with or without thorns; metepimeron with clearly extended and enlarged apical lobe extended posteriorly; metacoxae normal; tarsal claw with two teeth varying in relative lengths (teeth comparatively closely set in males); metabasitarsus shorter, equal or longer than following 3 joints combined; metafemur shorter, longer or equal to tibia; hind apical tibial spurs sub equal to breadth of hind tibia at apex. Hind femur slender, not exceeding apex of abdomen, hind coxae not enlarged; propodeum divided by longitudinal furrow; forewing always with 2 radial and 4 cubital cells (each of cells 2 and 3 receives a recurrent vein), anal cell with straight cross vein in basal half;

the basal vein is sub parallel to the first recurrent vein and joins subcosta for removed from the origin of cubitus. Subcosta slightly bends to meet the basalis. Hind wing with two closed middle cells, anal cell sessile or petiolate.

Distribution: Holarctic.

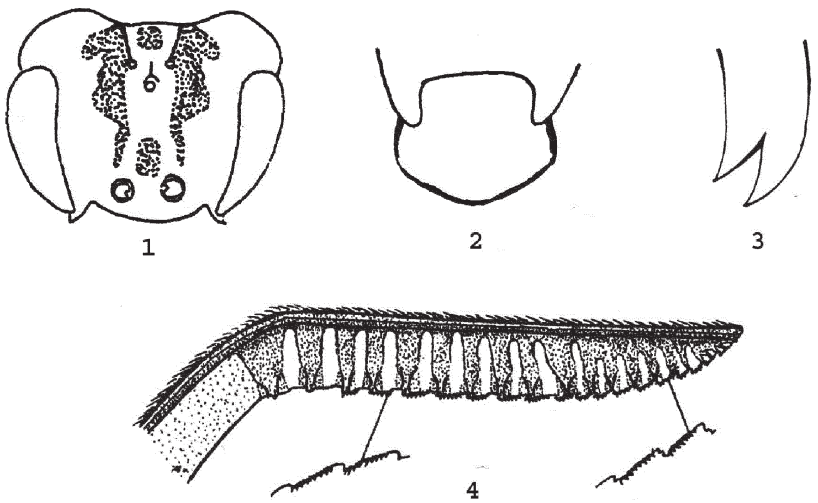
Descriptions:

***Tenthredo bandata* sp. nov. (Figs. 1-4)**

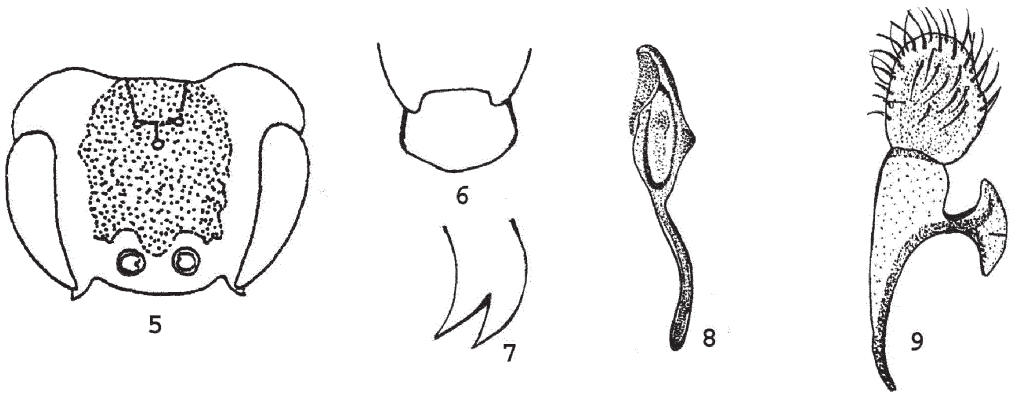
Female.- Color: Body pale green, black are; antenna except inner aspect of scape; mandible tip; median fovea interrupted in middle, spot on lateral sides of frontal ridges laterally not touching eye margin, posteriorly extending lateral to postocellar area to hypothetical hind margin of head; medial rectangular spot on postocellar area (Fig. 1) ; broad longitudinal stripe on suture of mesonotal middle lobe, broad spot on mesonotal lateral lobe leaving lateral aspects, small spot on mesonotal lateral lobe anterior to mesoscutellum; metanotum except posterior margin; mesosternum; basal broad triangular spot on propodeum, broad longitudinal band along midline on tergites 2-6, dots on dorsal aspects of all trochanters, posterior stripe on femora, tibiae and tarsi of front four legs; posterolateral aspects of femur and tarsi of metaleg, small posterior stripe on apical and basal parts of metatibia. Light brownish are: abdomen above except medial black band, meso- and metatibiae, mesotarsi. Wings hyaline, stigma and costa black, rest of venation light to dark brown.

Structure: Average length 8.5 mm. Antenna filiform 1.4× head width, flagellum not compressed; scape and pedicel as 5:3, segments 3 and 4 as 4:3; Clypeus (Fig. 2) rectangularly incised up to 1/3 of its length; labrum broader than long as 2:1 with truncate anterior margin; malar space 1.25× diameter of median ocellus. LID:IDMO:EL = 1.0:1.5:1.1; POL:OCL:OOL = 1.0:1.6:2.4. Frontal area below level of eyes; median fovea broad, shallow and limited by slightly raised supraantennal tubercles confluenting with similar frontal ridges; postocellar furrow absent, inter- and circumocellar furrows distinct; lateral furrows fine, diverging posteriorly; postocellar area subconvex, broader than long as 3:2, head parallel behind eyes. lCD:lTD = 1.0:2.5; mesoscutellum pyramidal, its appendage carinate, mesepisternum obtusely raised into blunt apex, mesosternum lacking thorns. Metabasitarsus than following 3 joints combined as 8:9; metafemur shorter than metatibia; tarsal claw (Fig. 3) with subapical tooth shorter than apical one; IATS:MB:OATS = 1:1.8:0.8. Lancet (Fig. 4) having 22 serrulae.

Sculpture and pubescence: Head shining



Explanation of Figures: Figs. 1-4 *Tenthredo bandata* sp. nov.
1) Color pattern of the frontal area of head, 2) Clypeus, 3) Tarsal claw, 4) Lancet;



Explanation of Figures: Figs. 5-9 *Tenthredo clavata* sp. nov.
5) Color pattern of the frontal area of head, 6) Clypeus, 7) Tarsal claw,
8) Penis valve, 9) Gonoforceps;

with dense, fine, distinct punctation. Mesonotum punctate like head; mesoscutellum with large, shallow, isolated punctation on posterior slope, its appendage with few, distinct punctation; mesepisternum shining with few, large, shallow punctation; mesosternum punctulate. Abdomen micro striated, sub shining. Pubescence golden, 0.15× scape length.

Male: Unknown.

Material examined: Holotype: @&, Uttarakhand, Kalamunitop, 2700m, 21.6.1993, Paratype: 16@&@& with same data as holotype, 2@&@&, Kalamunitop, 2700m, 21.6.2011.

Individual variations: All specimens alike.

Distribution: India: Uttarakhand.

Diagnosis: *T. bandata* is somewhat related to *T. finchi* Kirby on the basis of the color pattern of the frontal region and the overall shape of mesoscutellum, but both can be separated as follow: mesosternum entirely pale; malar space 2.5× diameter of median ocellus, mesoscutellum pale with black posterior half; tergites 2-6 black with pale posterior margins and postocellar area broader than long as 2:1 in *T. finchi*, whereas, in *T. bandata* sp.nov. mesosternum is entirely black, malar space 1.25× diameter of median ocellus; mesoscutellum entirely pale; tergites 2-6 pale with black elongated median longitudinal band and postocellar area broader than long as 3:2.

Etymology: The species name pertains to bands of abdomen.

***Tenthredo clavata* sp. nov. (Figs. 5-9)**

Male.- Color: Body brownish yellow, black are: antennal segments 1-5; frontal spot (Fig. 5) covering median fovea except supraantennal tubercles anteriorly, laterally not touching eye margin and posteriorly reaching hind margin of head; narrow median streak on pronotum, anterior margin of mesonotal middle lobe; mesonotal lateral lobe except 'x'- shaped mark anterior to mesoscutellum; visible parts of metanotum; margins of mesepimeron more or less, metepimeron more or less; apical 1/2 of outer lateral aspects of all coxae; dorsal aspects of all trochanters; basal 1/2 of dorsal aspect of profemur, dorsal stripe on mesofemur, posterior stripe on metafemur; apical 1/4 of metatibia; propodeum except broad posteromesal end and lateral aspects; anterior margin of tergite 2 more or less, lateral sides of tergites 4-5 more or less; tergites 6-9 entirely. Wings clear, hyaline; costa and stigma fulvous, rest of venation fuscous.

Structure: Average length 8 mm. Antenna filiform, 2.3× head width, flagellum with apical 5 segments compressed, scape and pedicel as 2:1, segments 3 and 4 as 4:3. Clypeus (Fig. 6) subrectangularly incised up to 1/3 of its length; labrum broader than longer as 3:2 with rounded anterior margin; malar space 1× diameter of median ocellus. LID:IDMO:EL = 1.0:1.3:0.9; POL:OCL:OOL = 1.0:1.2:2.0. Frontal area below level of eyes; median fovea deep, ditch-like,

clearly reaching median ocellus, and limited by roundly raised supraantennal tubercles confluenting with almost similarly raised frontal ridges; postocellar furrow shallow, interocellar furrows distinct, circumocellar furrows absent; lateral furrows shallow, diverging posteriorly; postocellar area flat, broader than long as 3:2; head narrowing behind eyes. ICD:ITD = 1.0:3.5; mesoscutellum roundly convex, its appendage faintly carinate; mesepisternum roundly raised, mesosternum without thorns. Metabasitarsus almost equal to following 3 joints combined; metafemur shorter than metatibia; tarsal claw (Fig. 7) with sub apical tooth shorter than apical one; IATS:MB:OATS = 1.0:2.5:0.8. Genitalia, Penis valve (Fig. 8), gonoforceps (Fig. 9).

Sculpture and pubescence: Head sub shining with dense, minute, distinct punctation excepting confluenting ones on and around postocellar area. Mesonotum subshining with dense, minute shallow punctation; mesoscutellum with anterior slope punctate like head, but posterior slope punctate like mesonotum, its appendage with shallow, scattered punctation; mesepisternum subrugose on lower half of its convexity, rest with dense, shallow, fine punctation, surface shining with general oily lustre; mesosternum finely punctulate. Abdomen finely micro striated, sub shining. Pubescence: golden, 0.15× scape length.

Female: Unknown.

Material examined: Holotype*B&*, Uttarakhand, -Kalamunitop, 2700 m, 26.6.1991. Paratypes: Uttarakhand, Kalamunitop, 2700m, 2*B&B&*, 26.6.1991; Flower Valley, 3200m, 1 *B&*, 24.7.1992; Flower Valley, 3200m,2B&B&, 23.6.2008.

Individual variations: Metatarsi whitish yellow in some individuals.

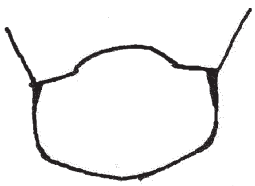
Distribution: India: Uttarakhand.

Diagnosis: The studied specimens almost exactly agree with type of the species, excepting the colour of metatarsi that may be whitish yellow instead of brownish yellow. On the basis of some key characters it goes close to *T. varicolor* but can be set aside from that due to the following characters: mesonotum, mesoscutellum and its appendage ferruginous (All these regions black in *T. variicolor*); Mesoscutellar appendage ecarinate (distinctly punctuate and carinated in *T. variicolor*); supraclypeal area subconvex (distinctly raised in *T. variicolor*); antenna 2.3× head width, flagellum with apical 5 segments compressed, segments 3 & 4 as 4:3 (antenna tapering towards apex, 2.1× head width, flagellum not compressed, segments 3 & 4 as 4:3).

Etymology: The species is named after peculiar shape of tarsal claw.

***Tenthredo fuscata* sp. nov. (Fig. 10-12)**

Female.- Color: Body yellowish brown,



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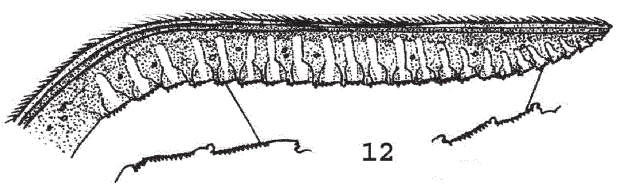

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Explanation of Figures: Figs. 10-12 *Tenthredo fuscata* sp. nov.
10) Clypeus, 11) Tarsal claw, 12) Lancet;

fuscous are: antenna, mandible tip, apices of tarsi. Wings hyaline, venation including Costa, subcosta and stigma pale to fulvous.

Structure: Average length 10mm. Antenna filiform, 2.4× head width, flagellum not compressed, scape and pedicel as 5:4, segments 3 and 4 as 4:3. Clypeus (Fig. 10) roundly incised up to 1/5 of its length with truncate lateral teeth; labrum broader than long as 5:3 with roundly pointed anterior margin, malar space 2× diameter of median ocellus. LID:IDMO:EL = 1.0:1.3:1.0; POL:OCL:OOL = 1.0:1.6:2.0. Frontal area below level of eyes; median fovea broad, shallow with carina in anterior half; supraantennal tubercles moderately raised and confluenting with almost similar frontal ridges; postocellar furrow indistinct, circum -and interocellar furrows distinct; lateral furrows distinct diverging posteriorly; postocellar area sub convex, broader than long as 4:3; head narrowing behind eyes. ICD:ITD = 1.0:3.5, mesoscutellum sub pyramidal with acute apex, its appendage carinate, mesepisternum obtusely raised into acute apex, mesosternum lacking thorns. Metabasitarsus shorter than following 3 joints combined as 6:7; metafemur almost equal to metatibia, tarsal claw (Fig.11) with sub apical tooth shorter than apical one; IATS:MB:OATS = 1.0:2.5:0.9. Lancet (Fig. 12) with 27 serrulae.

Sculpture and pubescence: Head with dense, fine, shallow punctation. Mesonotum punctated almost like head; mesoscutellum with large, shallow punctation on posterior half, its appendage wrinkled; mesepisternum and mesosternum densely, finely punctated with sebaceous lustre. Abdomen finely micro sculptured. Pubescence golden, 0.2× scape length.

Male: Unknown.

Material examined: Holotype: @&, Uttarakhand, Kalamunitop, 2700m, 21.6.1993, Paratype: 1@&, with same informations as of Holotype.

Distribution: India: Uttarakhand.

Diagnosis: *T. fuscata* sp. nov. is related to *T. serrulata* Singh & Saini but can be easily distinguished from the latter by the following combination of characters: Antenna fuscous, thorax entirely ferruginous, frontal and postocellar area without black spot (Antenna black, thorax pale with broad black markings, frontal area and entire postocellar area with black spot in *T. serrulata*); antenna 2.4× head width, segment 3 & 4 as 4:3 (antenna 2.0× head width, segment 3 & 4 in ratio of 3:2 in *T. serrulata*); malar space 2× diameter of median ocellus (malar space 1.6× diameter of lateral ocellus in *T. serrulata*).

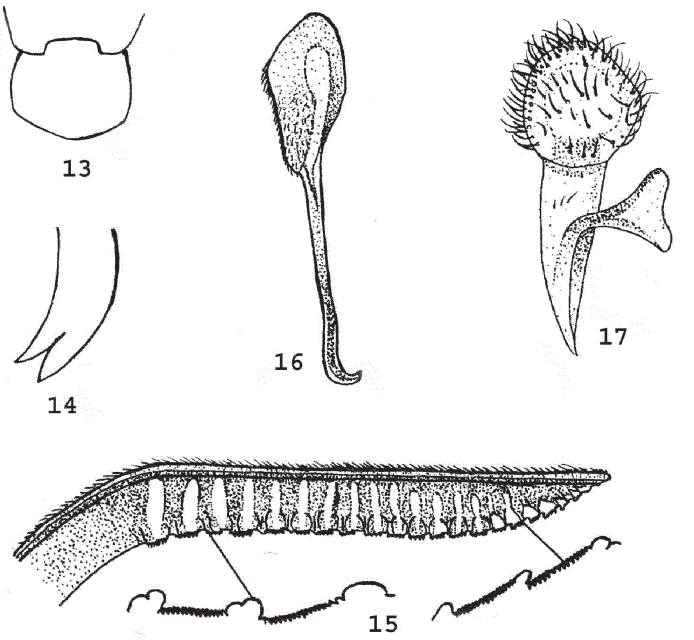
Etymology: The Species name is after general color pattern of body.

***Tenthredo kalamunitopensis* sp. nov. (Figs. 13-17)**

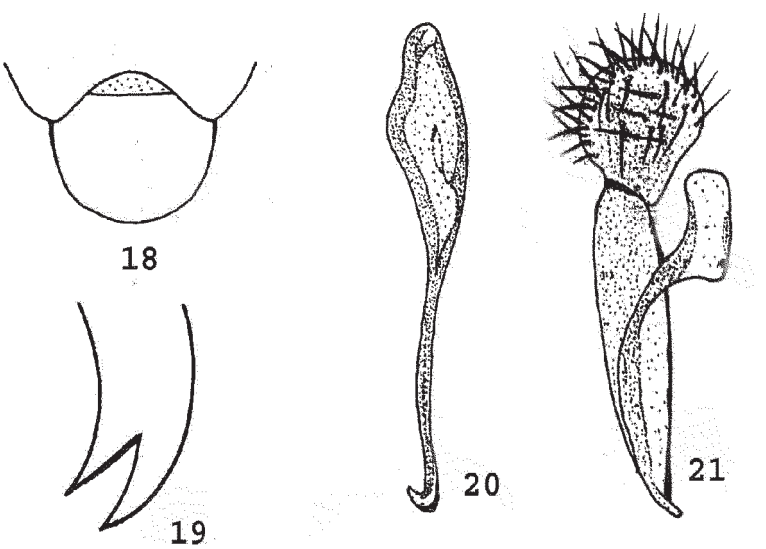
Female. - Color: Body pale green, outer side of antenna except scape and pedicel black with brownish tinge; wings clear, venation including costa, sub costa and stigma pale green.

Structure: Average length 10mm. Antenna filiform, 2.1× head width, flagellum not compressed; scape and pedicel as 5:4, segments 3 and 4 as 6:5. Clypeus (Fig. 13) arcuately incised up to 1/5 of its length with truncate lateral teeth; labrum broader than long with roundly pointed anterior margin; malar space 1.5× diameter of median ocellus. LID:IDMO:EL = 1.0:1.3:1.0, POL:OCL:OOL = 1.0:1.5:2.0. Frontal area below level of eyes; median fovea broader, shallowly reaching median ocellus, carinate in anterior half; supraantennal tubercles slightly indicated and confluenting with low lying frontal ridges, postocellar furrow absent, inter- and circumocellar furrows distinct, lateral furrows distinct, diverging posteriorly; postocellar area as long as broad; head narrowing behind eyes. ICD:ITD = 1:3, mesoscutellum pyramidal with distinct carina on posterior slope, its appendage carinate; mesepisternum with acute apex, mesosternum lacking thorns. Metabasitarsus shorter than following joints combined as 6:7, metafemur as long as metatibia; tarsal claw (Fig. 14) with sub apical tooth shorter than apical one; IATS:MB:OATS = 1.0:2.0:0.8. Lancet (Fig. 15) having 24 serrulae.

Sculpture and pubescence: Head sub opaque with dense, fine, shallow, distinct punctation. Thorax punctated like head, with sebaceous lustre. Abdomen subshining, microstriated.



Explanation of Figures: Figs. Figs. 13-17 *Tenthredo kalamunitopensis* sp. nov. 13) Clypeus, 14) Tarsal claw, 15) Lancet, 16) Penis valve, 17) Gonoforceps;



Explanation of Figures: Figs. 18-21 *Tenthredo nigrofuscata* sp. nov. 18) Clypeus, 19) Tarsal claw, 20) Penis valve, 21) Gonoforceps;

Pubescence golden, 0.15× scape length.

Male: Average length 7 mm. Similar to female. Genitalia: Penis valve (Fig. 16), gonoforceps (Fig. 17).

Material examined: Holotype @&, Uttarakhand, Kalamunitop, 2700m, 26.6.1991, Paratypes: 2@&@&, 3B&B&, with same data as of holotype; Kalamunitop, 2700m, 2B&B&, 1@&, 27.6.2010; Sikkim, Lachen, 3200m, 3@&@&, 1B&, 21.5.2012; Lachen, 3200m, 1B&, 22.5.2012; Lachung, 2800m, 25.5.2012.

Individual variation: Femora of males posteriorly narrowly striped with black.

Distribution: India: Uttarakhand, Sikkim.

Diagnosis: This species runs close to *T. casta* Konow, but can be easily differentiated from the latter on the basis of following characters: Antenna at most equal to abdomen (Antenna distinctly longer than abdomen in *T. casta*); antennal segment 3 & 4 almost equal (antennal segment 3 distinctly longer than 4 in *T. casta*); postocellar furrow shallow, postocellar area as long as broad (postocellar furrow absent, postocellar area broader than long as 4:3 in *T. casta*),; clypeus arcuately incised up to 1/5 of its length with truncate lateral teeth (clypeus rectangularly incised up to ¼ of its medial length with truncate lateral teeth in *T. casta*); malar space 1.5× diameter of median ocellus (malar space 2× diameter of median ocellus in *T. casta*).

***Tenthredo nigrofuscosata* sp. nov. (Figs. 18-21)**

Male.- Color: Body black, yellowish are: mandible base, anterior margin of labrum, posterolateral base of clypeus, supraclypeal area, lower 1/3 of inner orbit. Ferruginous are: tergite 6 except anteromedial triangular spot with apex towards posterior margin, tergites 7-9 entirely, all sternites. Wings clear, venation including costa, subcosta and stigma fuscous to black.

Structure: Average length 9mm. Antenna filiform, 1.5× head width, flagellum not compressed, scape and pedicel as 5:4, segments 3 and 4 as 4:3. Clypeus (Fig.18) rectangularly incised up to 1/3 of its length with pointed lateral teeth, labrum broader than long as 3:2 with rounded anterior margin, malar space 0.5× diameter of median ocellus. LID:lDMO:EL = 1.0:1.8:1.6; POL:OCL:OOL = 1.0:1.4:2.0. Frontal area below level of eyes, median fovea shallowly indicated and limited by slightly raised supraantennal tubercles confluenting with low lying frontal ridges, post-, inter-, and circumocellar furrows shallow; lateral furrows fine, diverging posteriorly, postocellar area flat, broader than long as 3:2, head narrowing behind eyes. ICD:ITD = 1.0:3.5, mesoscutellum pulvinate, its appendage carinate, mesepisternum roundly raised with minute but acute apex, mesosternum lacking thorns. Metabasitarsus shorter than following 3 joints combined as 6:7; metafemur equal to metatibia; tarsal claw (Fig. 19) with subapical tooth almost equal to apical one, IATS:MB:OATS = 1.0:2.0:0.8. Genitalia: Penis valve (Fig. 20), gonoforceps (Fig. 21).

Sculpture and pubescence: Head with dense, minute, deep, distinct punctation. Mesonotum punctated like head; mesoscutellum with posterior half punctated like mesonotum, its appendage wrinkled, mesepisternum and mesosternum densely micro-sculptured. Abdomen with dense, fine, shallow punctation. Pubescence fuscous, 0.3× scape length.

Material examined: Holotype: B&, Uttarakhand, Kalamunitop, 2700m, 21.6.1993, Paratypes: 9B&B& with same data as of holotype; Kalamunitop, 2700m, 2B&B&, 21.6.2011.

Individual variations: All specimens alike.

Distribution: India: Uttarakhand.

Diagnosis: This species is close to *T. nigrobasilis* Malaise but both can be set aside as follow: In *T. nigrofuscosata* sp.nov. tergites 7-9 are ferruginous (5-9 ferruginous in *T. nigrobasilis*); head and mesopleura densely micropunctate (head and mesopleura rugose with pit like confluenting punctation in *T. nigrobasilis*); legs black with round pale markings (legs ferruginous with broad black markings in *T. nigrobasilis*) and malar space 0.5× diameter of median ocellus (malar space 1.25× diameter of median ocellus.

Etymology: The species is named after its general colour of body.

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Abbreviations:

Abbreviations used in text are: EL = eye length, IATS = inner apical tibial spur, IDMO = interocular distance at level of median ocellus, LID = lower inter-ocular distance, MB = metabasitarsus, OATS = outer apical tibial spur, OCL = ocello - occipital line, OOL = oculo ocellar line, POL = postocellar line.

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