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Six New Species of *Tenthredo* LINN. from Northwestern India (Hymenoptera, Symphyta, Tenthredinidae)

With 24 Figures

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Abstract. Six new species of *Tenthredo* are reported from India i.e. *T. gulmargi*, *T. khajjiari*, *T. levigata*, *T. jalouriensis*, *T. hemkunti* and *T. kufrii*. Apart from illustrating the genitalia, the new species have been separated from already reported related taxa. The population variation, if any, has also been discussed.

Introduction

Though the taxonomic work on Indian *Tenthredo* is quite scattered, still MALAISE's (1945) comprehensive paper is such an exhaustive study that, in addition to compiling almost all the earlier works for southeast Asia, adds 18 new species of this genus from India. MUCHE's (1982, 1983) are the only works after MALAISE (1945), which make an addition of 3 new species to the earlier census of Indian *Tenthredo* and bring the total number of so far reported species from this country to 82. In the present study, which is one of the series of papers dealing with new records of *Tenthredo* from India, six new species are reported from the northwestern part.

The terminology used by ROSS (1937, 1945) and MALAISE (1945) has been adopted. — The holotypes and paratypes are presently lying in the collection of authors and will be submitted to IARI, Pusa National Collection, New Delhi (India), after this paper is published.

Tenthredo gulmargi sp. n. (Figs. 1, 7, 13, 16, 19)

Female Average length, 10.7 mm. Body creamish yellow (with green tinge when alive), black are: spot on innerside of scape, pedicel entirely and remaining antennal segments except their underside; mandible tip; frontal spot, anteriorly penetrating between pale supraantennal tubercles, extending laterally without reaching eye and posteriorly reaching hypothetical hind margin of head; lateral spot on posterior side of head; narrow medial transverse stripe on pronotum; mesonotal middle lobe except V-shaped margin and 2 irregular spots on lateral lobe; visible part of mesopostnotum; metanotum except spot lateral to scutellum; hind margin of metapostnotum; faint oblique stripe on mesepisternum reaching upto apex; broad medial stripe along anterior margins of all terga; spot on meso- and metatrochanters; narrow stripe on distal $\frac{2}{3}$ of femora, tibiae and tarsi posteriorly. Wings clear, costa and stigma pale green, venation dark brown to black.

Antenna filiform, 2.1x head width, segments 3 and 4 in ratio 3:2; clypeus (Fig. 1) narrowly roundly incised upto $\frac{1}{5}$ of its medial length with truncate lateral teeth; labrum broader than long in ratio 4:3 with rounded anterior margin; malar space equal to diameter of lateral ocellus; LID IDMO EL = 2.0 3.8 2.6; OOL POL OCL = 3.5 1.0 2.1; fron-

tal area below level of eyes; supraantennal tubercle distinctly raised and abruptly cut off from low frontal ridge; median fovea narrow with faint longitudinal carina; circum-, inter- and postocellar furrows distinct; lateral furrow deep, slightly diverging posteriorly; postocellar area subconvex, broader than long in ratio 2:1 at maximum width; head distinctly narrowing behind eyes; AITD ICD = 2.8 1.0; mesoscutellum slightly raised with faint transverse carina; appendage weakly carinate; mesepisternum obtusely raised with blunt apex; mesosternum lacking thorns; apical tooth of claw (Fig. 7) slightly longer than subapical; metabasitarsus shorter than following 3 joints combined; metafemur shorter than tibia.

Head subshining with minute, shallow and widely separated punctures, hind orbit densely punctured; mesonotum and scutellum shallowly and densely punctured with faint microsculpture; appendage and metascutellum almost impunctate; metanotum distinctly punctured; mesepisternum minutely wrinkled with sebaceous lustre; mesosternum shallowly punctured with faint microsculpture; abdomen microstriated with shallow punctures. Lancet (Fig. 19) narrow with 16 serrulae, each serrula having single lobe-like anterior and up to 15 distinct posterior subbasal teeth.

Male Average length, 8.8 mm. Similar to female except: no black stripe on mesepisternum; black stripe along meso- and metafemora reaching base. Penis valve (Fig. 13) and gonoforceps (Fig. 16).

Holotype Female, Jammu and Kashmir, Gulmarg, 2150 m, 30.6.1984. **Paratypes** 5 ♀♀, 2 ♂♂, with same data as holotype.

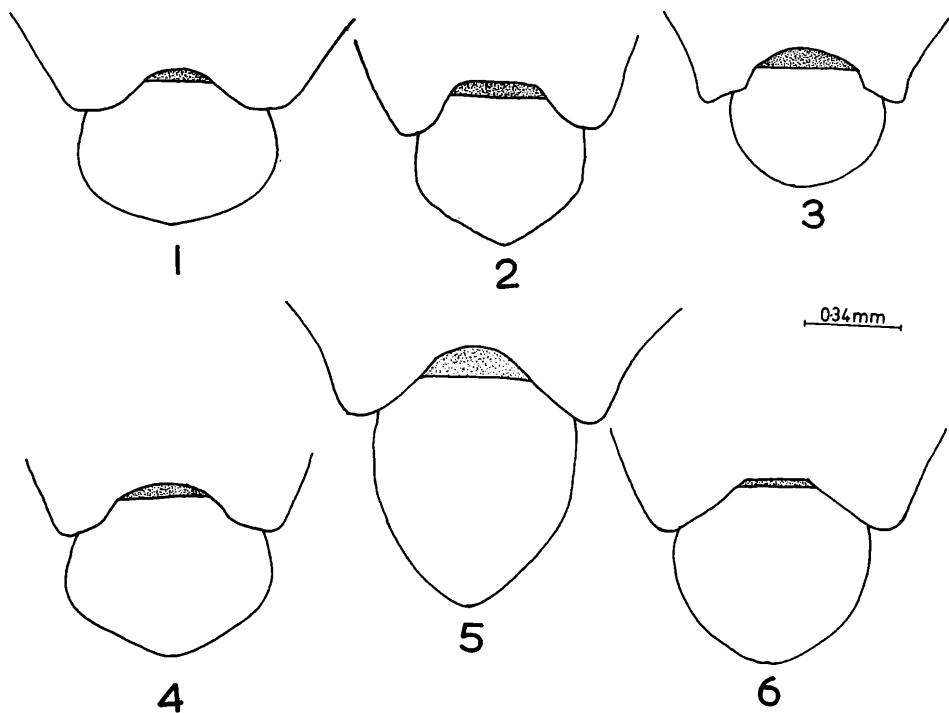
Remarks This new species shows remarkable similarity with *T. nigromaculata* SMITH, 1878. However, it can be set aside from the latter on account of possessing broad medial black spots on all terga, clypeus broadly incised, postocellar area subconvex and broader than long in ratio 2:1, surface between punctures of mesonotum microsculptured and lancet with 16 serrulae, each having single lobe-like anterior and 10–15 posterior subbasal teeth. In *T. nigromaculata* abdomen is without black, clypeus is narrowly incised, postocellar area is flat and broader than long in ratio 3:2, surface between punctures of mesonotum is shining and lancet has 18 serrulae each with poorly developed anterior and 9–13 posterior subbasal teeth.

Etymology The species name has been taken from its type locality.

***Tenthredo khajjiari* sp. n. (Figs. 2, 8, 14, 17, 20)**

Female Average length, 9.2 mm. Body black, whitish to yellowish white are; basal half of mandible; lateral spot on clypeus; extreme base of tegula; deflexed side of abdominal tergum 4; extreme distal ends of trochanters; frontside of profemur, tibia and tarsus; distal $\frac{1}{3}$ of mesofemur and tibia anteriorly. Wings clear, fore on with distinctly infuscated crossband over stigma, stigma and venation dark brown to black.

Antenna compressed towards apex, 1.8x head width, segments 3 and 4 in ratio 7:5; clypeus (Fig. 2) subrectangularly incised up to $\frac{1}{3}$ of its medial length with truncate lateral teeth; labrum broader than long in ratio 5:4 with roundly pointed anterior margin; malar space 0.8x diameter of lateral ocellus; LID IDMO EL = 2.0 3.4 2.8; OOL POL OCL = 2.7 1.0 1.5; frontal area slightly below level of eyes; supraantennal tubercle raised and confluent with similar frontal ridge; median fovea broad and shallow; circum-, inter- and postocellar furrows sharp; lateral furrow narrow and sunken; postocellar area convex, broader than long in ratio 2:1; head slightly narrowing behind eyes; ITD ICD = 3.0 1.0; mesoscutellum roundly raised; appendage faintly carinate; mesepisternum lacking thorns; apical tooth of claw (Fig. 8) much longer than subapical; metabasitarsus shorter than following 3 joints combined; metafemur as long as tibia.



Figs. 1–6. Clypeus. 1: *Tenthredo gulumargi* sp. n. – 2: *T. khajjiari* sp. n. – 3: *T. levigata* sp. n. – 4: *T. jalouriensis* sp. n. – 5: *T. hemkunti* sp. n. – 6: *T. kufrii* sp. n.

Head with shallow irregularly scattered punctures, hind orbit minutely and densely punctured; mesonotum and anterior slope of scutellum densely and shallowly punctured; posterior slope of mesoscutellum with large and deep punctures; appendage distinctly punctured on lateral aspect only; metanotum shallowly punctured; metascutellum politus; mesepisternum minutely punctured with distinct wrinkles along convexity; mesosternum regularly punctulate; abdomen subshining, faintly microstriated, apical 5 terga minutely and densely punctured.

Lancet (Fig. 20) with 21 serrulae, each serrula is flat having 2 small anterior and upto 14 distinct posterior subbasal teeth.

Male Average length, 8.6 mm. Similar to female except: underside of distal half of antenna pale; face below antenna, anterolateral spot on pronotum, mesosternum, metepisternum, deflexed sides of terga 1–6 and all sterna except last, whitish; tergum 4 entirely yellowish brown; whitish on legs more pronounced; crossband of forewing faint but distinct and apex beyond it slightly infumated. Penis valve (Fig. 14) and gonoforceps (Fig. 17).

Holotype Female, Himachal Pradesh, Khajjiar, 1800 m, 21.7 1983. **Paratypes** 2 ♀♀, 1 ♂, with same data as holotype. 1 ♀, 2 ♂♂, Himachal Pradesh, Kalatop, 2500 m, 27.–30.7 1983, 1 ♂, Jammu and Kashmir, Putshai, 2000 m, 1.7 1984.

Population variation Clypeus entirely black; mesoscutellum almost impunctate but not shining.

Remarks This new species is related to two Burmese species having forewing with distinctly infuscated crossband over stigma, i.e. *T. frontatus* MALAISE, 1945 and *T.*

pompilina MALAISE, 1945. Though it exhibits more similarity with the latter, but can be differentiated from it on account of possessing tergum 4 yellowish brown in male, antenna 1.8x head width and segments 3 and 4 in ratio 7:5, postocellar furrow sharp, apical tooth of claw much longer than subapical and each serrula of lancet flat, having upto 14 posterior subbasal teeth. In *T. pompilina* tergum 4 is not yellowish brown, antenna is 2.6x head width and segments 3 and 4 in ratio 8:9, postocellar furrow is absent, apical and subapical teeth of claw are almost equal and each serrula of lancet is deep lobe-like, having upto 7 posterior subbasal teeth.

Etymology The species name has been taken from its type locality.

***Tenthredo levigata* sp. n. (Figs. 3, 9, 21)**

Female Length, 8.1 mm. Body black, citrine are: mandible except tip; labrum and clypeus; spot on lower hind orbit; posterior margin of pronotum; tegula; deflexed sides of terga 1–7 sterna 2–4; pro- and mesolegs except basal $\frac{3}{4}$ of coxae; extreme tip of metacoxa, trochanter except irregular spot and immediate base of femur. Pro- and mesotibiae and tarsal joints infuscated towards tips. Metatibia and tarsus brownish. Narrow basal stripe along tergum 4, fulvous. Wings clear, stigma and venation brown. Antenna filiform, 3.0x head width, segment 3 slightly shorter than 4; clypeus (Fig. 3) roundly incised upto $\frac{1}{3}$ of its medial length; labrum broader than long in ratio 4:3 with roundly pointed anterior margin; malar space equal to diameter of lateral ocellus; LID IDMO EL = 2.0 3.4 3.3; OOL POL OCL = 3.4 1.0 3.6; frontal area slightly below level of eyes; supraantennal tubercle raised and confluent with similar frontal ridge; median fovea narrow with deep pit in middle; circum- and postocellar furrows absent, interocellar one clear; lateral furrow shallow, slightly excurved; postocellar area subconvex, broader than long in ratio 5:4; head narrowing behind eyes; ITD ICD = 2.6 1.0; mesoscutellum slightly raised; appendage faintly carinate; mesepisternum obtusely raised without carina or acute apex; mesosternum lacking thorns; apical tooth of claw (Fig. 9) slightly longer than subapical; metabasitarsus longer than following 3, but distinctly shorter than remaining 4 joints combined; metafemur slightly longer than tibia. Head and mesonotum shining with small, shallow and widely separated punctures; meso- and metascutelli and appendage impunctate; metanotum polished; mesepisternum rugose; mesosternum finely punctulate; abdomen strongly shining, impunctate. Lancet (Fig. 21) with 23 serrulae, each serrula is deep and subtriangular having single distinct and 4–5 small anterior and 6–8 irregular posterior subbasal teeth.

Male Unknown.

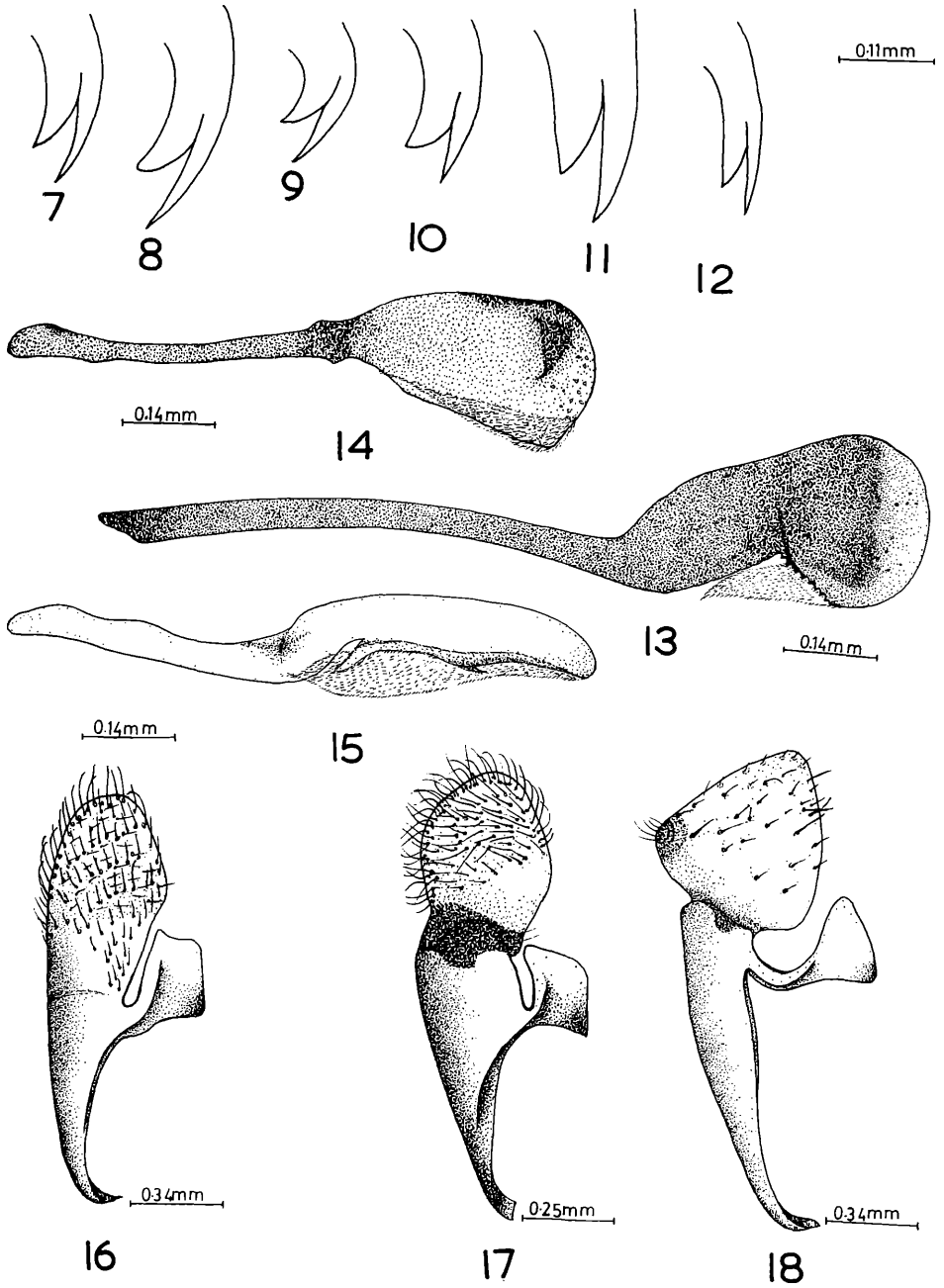
Holotype Female, Himachal Pradesh, Kalatop, 2550 m, 13.7 1983. Paratype: No.

Remarks This new species shows some resemblance with *T. appendicella* MALAISE, 1945. However, it can be set aside from the latter on account of having legs citrine with black markings, median fovea with deep medial pit, mesepisternum roundly raised without carina, apical tooth of claw longer than subapical, mesoscutellum and abdomen polished. In *T. appendicella* legs are reddish yellow, median fovea is without pit, mesepisternum has distinct carina, apical tooth of claw is shorter than subapical, mesoscutellum is punctured and abdomen microstriated.

Etymology The species name pertains to its smooth and shining body.

***Tenthredo jalouriensis* sp. n. (Figs. 4, 10, 15, 18, 22)**

Female Average length, 10.9 mm. Body pallid, black are: antenna except scape; mandible tip; frontal spot, anteriorly covering median fovea leaving supraantennal



Figs. 7–12. Tarsal claw 7 *Tenthredo gulmargi* sp. n. – 8 *T. khajjiari* sp. n. – 9: *T. levigata* sp. n. – 10: *T. jalouriensis* sp. n. – 11 *T. hemkunti* sp. n. – 12: *T. kufrii* sp. n. – Figs. 13–15. Penis valve. 13: *T. gulmargi* sp. n. – 14: *T. khajjiari* sp. n. – 15: *T. jalouriensis* sp. n. – Figs. 16–18. Gonoforceps. 16: *T. gulmargi* sp. n. – 17 *T. khajjiari* sp. n. – 18: *T. jalouriensis* sp. n.

tubercle, extending laterally and posteriorly without touching eye or hypothetical hind margin of head; postocellar area; large lateral and small medial spot on posterior side of head; medial transverse stripe on pronotum almost reaching lateral margin; mesonotum except V-shaped margin of middle lobe and two spots on lateral lobe; posterior margins of meso- and metascutelli; metanotum except spot lateral to scutellum; narrow posterior margin of metapostnotum; stripe dorsal to each pleural suture; mesosternum; narrow medial stripe along basal margins of terga 1 and 2; lateral spots on terga 1–8, combinedly appearing as lateral longitudinal band; narrow stripe along metacoxa, trochanter and femur, posteriorly. Forewing yellowish hyaline, hind one clear, costa and stigma pale, venation dark brown to black.

Antenna slightly compressed, 2.4x head width, segments 3 and 4 in ratio 8:7 clypeus (Fig. 4) roundly to subsquarely incised upto $\frac{2}{7}$ of its medial length; labrum broader than long in ratio 6:5 with roundly pointed anterior margin; malar space 0.5x diameter of lateral ocellus; LID IDMO EL = 2.0 4.0 3.6; OOL POL OCL = 3.5 1.0 1.8; frontal area below level of eyes; supraantennal tubercle distinctly raised and confluent with similar frontal ridge; median fovea narrow with deep pit in middle; circum-, inter- and postocellar furrows sharp; lateral furrow deep, slightly diverging posteriorly; postocellar area almost flat with faint longitudinal carina, broader than long in ratio 2:1 at maximum width; head strongly narrowing behind eyes; ITD ICD = 3.0 1.0; mesoscutellum distinctly raised with faint transverse carina; appendage slightly carinate; mesepisternum obtusely raised without acute apex; mesosternum lacking thorns; apical tooth of claw (Fig. 10) slightly longer than subapical; metabasitarsus shorter than following 3 joints combined; metafemur as long as tibia.

Head shining with few indistinct punctures; mesonotum polished, only middle lobe with distinct punctures; mesoscutellum having few shallow punctures on posterior slope only; appendage, metanotum and scutellum impunctate; mesepisternum shining and impunctate with few distinct punctures on apex only; mesosternum minutely punctured; abdomen faintly microstriated.

Lancet (Fig. 22) with 22 serrulae, each serrula is lobe-like having single dent-like anterior and 4–7 indistinct posterior subbasal teeth.

Male Average length, 9.8 mm. Similar to female except: lateral aspect of postocellar area pale; black on posterior slopes of meso- and metascutelli less distinct; mesosternum pale; black lateral spots on each tergum joined anteriorly through narrow stripe and all spots on one side not continuous, but interrupted by pale hind margins. Penis valve (Fig. 15) and gonoforceps (Fig. 18).

Holotype Female, Himachal Pradesh, Jalouri Pass, 3000 m, 27.5.1984. **Paratypes** 3 ♀♀, 3 ♂♂, with same data as holotype. 5 ♀♀, 3 ♂♂, Himachal Pradesh, Narkanda, 2080 m, 24.5.1984. 2 ♀♀, 2 ♂♂, Himachal Pradesh, Manali, 2600 m, 30.5.1984. 4 ♀♀, 3 ♂♂, Uttar Pradesh, Chopta, 3000 m, 15–16.6.1985. 3 ♀♀, Uttar Pradesh, Gobinddham, 3000 m, 21.6.1985.

Remarks This new species shows some similarity with *T. laeviasima* MALAISE, 1945. However, it is distinguished from the latter on account of having pale V-shaped margin of mesonotal middle lobe, yellowish costa, pro- and mesolegs without black and antennal segments 3 and 4 in ratio 8:7. In *T. laeviasima* at the most triangular apex of mesonotal middle lobe is pale, costa is black, pro- and mesolegs have black posterior stripe and antennal segments 3 and 4 are in ratio 7:4.

Etymology The species name has been taken from its type locality.

***Tenthredo hemkunti* sp. n. (Figs. 5, 11, 23)**

Female Average length, 13.6 mm. Body prasinus, black are: antenna; mandible tip; broad frontal spot, anteriorly covering median fovea, extending laterally upto eye and

posteriorly reaching hypothetical hind margin of head; broad irregular spot on temple continuous with frontal spot and touching posterior eye margin; postocellar area; posterior side of head; pronotum except broad ventral angle and narrow posterior margin; spot towards distal end of tegula; mesonotum; large medial spot on mesoscutellum; appendage; metanotum and scutellum; metapostnotum except medial spot; parapterum; narrow stripe along each pleural suture; abdomen from above except longitudinal furrow and rectangular spot lateral to it along hind margin of propodeum, triangular medial spots towards hind margins of terga 4 and 5, large spot on tergum 9; posterior stripe along trochanters, femora, basal $\frac{1}{3}$ of protibia, mesotibia; metatibia and tarsus entirely. Pro- and mesotibiae and tarsal joints infuscated towards tips. Forewing uniformly subinfuscated, hind one clear, stigma and venation dark brown to black.

Antenna stout, slightly compressed, 2.0x head width, segments 3 and 4 in ratio 3:2; clypeus (Fig. 5) roundly incised upto $\frac{1}{3}$ of its medial length; labrum slightly longer than broad with narrowly rounded anterior margin; malar space 1.2x diameter of lateral ocellus; LID IDMO EL = 2.0 3.1 2.7 OOL POL OCL = 4.0 1.0 3.1; frontal area below level of eyes; supraantennal tubercle raised and confluent with similar frontal ridge; median fovea deep; circum-, inter- and postocellar furrows distinct; lateral furrow narrow and deep; postocellar area convex and subquadrate; head faintly dilated behind eyes; ITD ICD = 3.0 1.0; mesoscutellum pyramidally raised with pointed apex; appendage carinate; mesepisternum strongly raised with compressed apex; mesosternal thorns absent; apical tooth of claw (Fig. 11) longer than subapical; metabasitarsus shorter than following 3 joints combined; metafemur slightly longer than tibia.

Head shining with minute, shallow and scattered punctures, more dense on hind orbit; mesonotum densely, irregularly punctured with shining intervening spaces; meso- and metascutelli with shallow and isolated punctures; appendage having large and shallow punctures near hind margin; metanotum minutely punctured; mesepisternum and sternum minutely and densely punctured; propodeum shining, remaining terga uniformly microstriated.

Lancet (Fig. 23) with about 29 serrulae, each serrula having single lobe-like anterior and 4–5 posterior subbasal teeth.

Male Unknown.

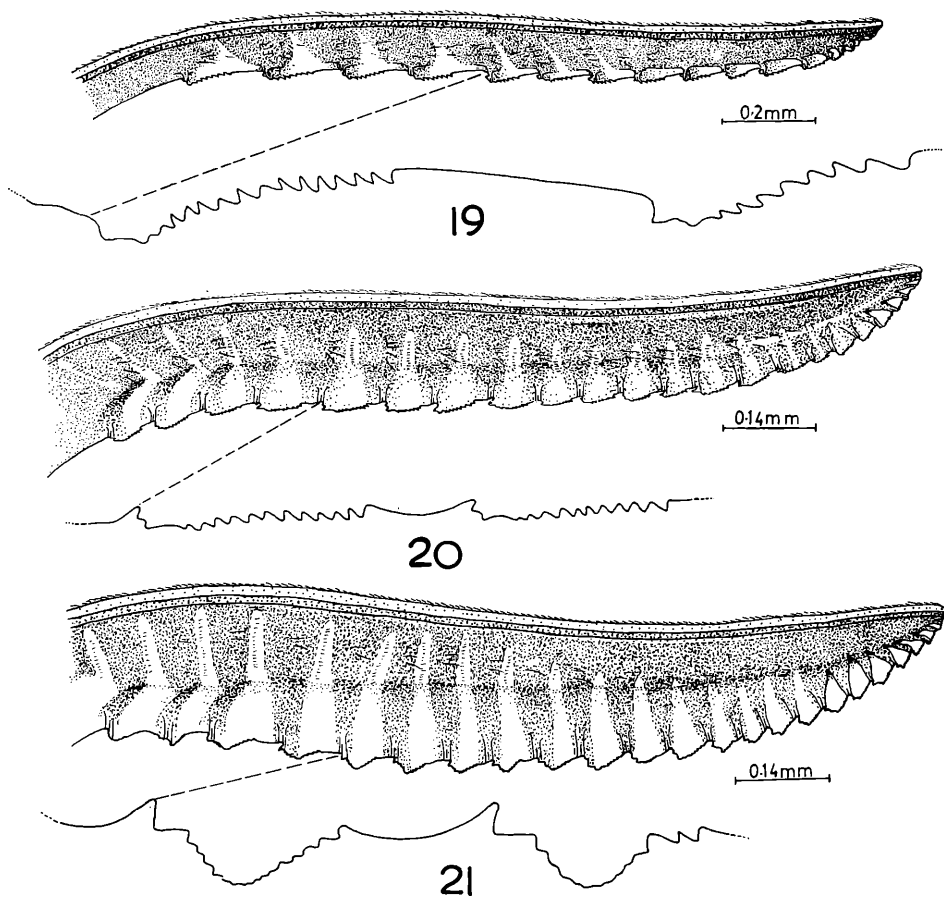
Holotype Female, Uttar Pradesh, Gobinddham, 3000 m, 21.6.1983. **Paratype** 1 ♀, Himachal Pradesh, Narkanda, 2080 m, 24.5.1984.

Remarks This new species shows some relationship with two species i.e. *T. segregata* KONOW, 1908 and *T. pseudomelaena* MALAISE, 1945. However, it can be separated from both of them on account of possessing black mesonotum, meso- and metascutelli and appendage with black spot, mesepisternum pale, antenna shorter than abdomen, head dilated behind eyes, apex of mesepisternum compressed and head on and around the frontal area shining with minute punctures. In *T. segregata* mesonotum has pale medial spot, meso- and metascutelli and appendage are entirely pale, mesepisternum is black and antenna is as long as abdomen. In *T. pseudomelaena* mesepisternum has black oblique band, head is strongly narrowing behind eyes, apex of mesepisternum is rounded and head on and around the frontal area has large punctures and wrinkles.

Etymology The species name has been taken from a famous religious place on way to which its type locality is situated.

***Tenthredo kufrii* sp. n. (Figs. 6, 12, 24)**

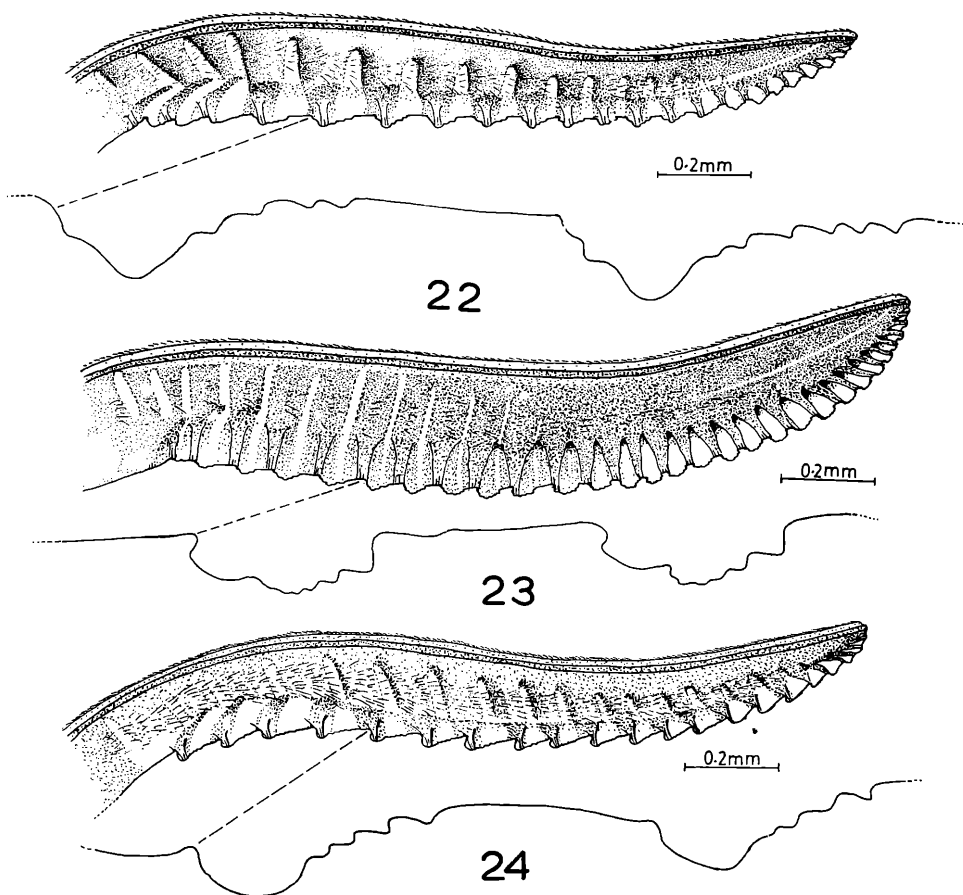
Female Length, 12.5 mm. Body black, yellowish white are: mandible except apical half; basal spot on labrum; broad lateral spots on clypeus almost confluent in middle; spot on lower hind orbit touching eye; dorsal pronotal angle; tegula; medial spot on metapostnotum; narrow hind margin and spot on lateral side of propodeum; irregular



Figs. 19–21. Lancet. 19: *Tenthredo gulmargi* sp. — 20: *T. khajjiari* sp. n. — 21 *T. levigata* sp. n.

spot on frontside of coxae. Ferruginous are spot on innerside of scape; distal $\frac{1}{3}$ of tergum 2, 3–5 entirely and faint spot near hind margins of 6–9; sterna 2–5 and narrow hind margins of 6 and 7 legs except coxae, trochanters and infumated tips of tarsal joints. Black of abdomen with faint bluish tinge. Wings light brownish hyaline, stigma and venation dark brown to black.

Antenna compressed, 2.8x head width, segments 3 and 4 in ratio 10:9; clypeus (Fig. 6) roundly to subsquarely incised upto $\frac{2}{7}$ of its medial length; labrum broader than long in ratio 5:4 with bluntly pointed anterior margin; malar space 1.3x diameter of lateral ocellus; LID IDMO EL = 2.0 3.0 2.4; OOL POL OCL = 2.6 1.0 2.0; frontal area almost at level of eyes; supraantennal tubercle strongly elevated and indistinctly demarcated from raised frontal ridge by inconspicuous furrow median fovea broad with longitudinal carina; circum-, inter- and postocellar furrows distinct; lateral furrow deep, slightly diverging posteriorly; postocellar area flat with very faint indication of longitudinal furrow, broader than long in ratio 7:4 at maximum width; head slightly dilated behind eyes; ITD ICD = 3.2 1.0; mesoscutellum slightly raised; appendage carinate; mesepisternum distinctly raised with carina along mesosternal border; mesosternum lacking thorns; apical tooth of claw (Fig. 12) longer than subapical; metabasitarsus as long as following 3 joints combined; metafemur shorter than tibia.



Figs. 22–24. Lancet. 22: *Tenthredo jalouriensis* sp. n. — 23: *T. hemkunti* sp. n. — 24: *T. kufrii* sp. n.

Frontal area subrugose and having distinct microsculpture, postocellar area and area between frontal ridge and eye microsculptured and with large, shallow and isolated punctures, hind orbit minutely punctured without microsculpture; mesonotum uniformly and strongly microsculptured with distinct punctures on lateral lobe and adjacent part of middle lobe; mesoscutellum dull with large, deep and dense punctures; appendage punctured on lateral sides only; metanotum minutely punctured; metascutellum with faint wrinkles and distinct punctures; mesepisternum rugose without microsculpture; mesosternum densely punctulate; abdomen uniformly microstriated with few scattered punctures.

Lancet (Fig. 24) with 20 serrulae, each serrula is lobe-like having no anterior and about 4 posterior subbasal teeth.

Male Unknown.

Holotype Female, Himachal Pradesh, Kufri, 2500 m, 24. 5. 1984. Paratype: No.

Remarks This new species exhibits definite relationship with two Indian species i.e. *T. pulchra* JAKOVLEV, 1891 and *T. latifasciata* CAMERON, 1877. However, it can be

distinguished from both of them on account of having clypeus with broad lateral pale spot, tegula yellow, narrow hind margin and lateral side of propodeum yellowish, posterior margin of tergum 2 and 3–5 entirely including spots on 6–9 ferruginous, legs except coxae and trochanters reddish, antenna 2.8x head width with segments 3 and 4 in ratio 10:9, median fovea with longitudinal carina, postocellar area with faint longitudinal furrow and lancet with 20 serrulae, each serrula lobe-like, having no anterior and 4–5 posterior subbasal teeth. In *T. pulchra* tegula is black, terga 3–4 and sides of on entire tergum 5 ferruginous, legs are black with pale markings, antenna is 2.1x head width and lancet has 23 serrulae, each serrula somewhat pointed having 1–2 anterior and 8–12 posterior subbasal teeth. In *T. latifasciata* clypeus lacks pale spot, propodeum is black, antenna is 2.2x head width with segments 3 and 4 in ratio 5:4, median fovea has flat bottom, postocellar area is without longitudinal furrow and lancet has 23 serrulae, each serrula almost flat, having 2 small anterior and 15–17 posterior subbasal teeth.

E t y m o l o g y The species name has been taken from its type locality.

A c k n o w l e d g e m e n t s

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A b b r e v i a t i o n s

EL — eye length; ICD — intercenchri distance; IDMO — interocular distance at level of median ocellus; ITD — intertegular distance; LID — lower interocular distance; OCL — oculo-occipital line; OOL — oculo-ocellar line; POL — postocellar line.

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