

Sawflies from Laos (Hymenoptera: Tenthredinidae)

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HARIS A. & ROLLER L.: *Sawflies from Laos (Hymenoptera: Tenthredinidae)*.

Abstract: Eleven new species are described from Laos: *Apeptamena abrahami* spec. nov., *Athlophorus anjou* spec. nov., *Beleses abrahami* spec. nov., *Blennocampa laosensis* spec. nov., *Macrophya hergovitsi* spec. nov., *Rocalia lanxangensis* spec. nov., *Tenthredo jendeki* spec. nov., *Tenthredo sausai* spec. nov., *Tenthredo saringeri* spec. nov., *Xenapatidea jendeki* spec. nov. and *Xenapatidea nigrissima* spec. nov. *Athlophorus placidus* (Konow, 1898), *Brykella heinrichi* Malaise, 1943, *Caliroa cyanea* Malaise, 1961, *Caliroa siamana* Togashi, 1982, *Canonias assamensis* Rohwer, 1915, *Canonias inopinus* Konow, 1900, *Monophadnus rivalis* Konow, 1906, *Neostromboceros coxalis* (Smith, 1857), *Nesoselandria albotegularissima* Haris, 2006, *Nesoselandria birmana* Malaise, 1944, *Nesoselandria devriesi* Haris, 2006, *Nesoselandria sulciiceps* Malaise, 1944, *Tenthredo megacephala* Cameron 1899 and *Tenthredo margaretella* Rohwer, 1916 are new records for Laos.

Key words: Hymenoptera, Tenthredinidae, Laos, new species.

Introduction

Laos traces its history to the kingdom of Lan Xang (literally: million of elephants), founded in 1345 and fell apart in 1707-1713 into 3 kingdoms: Luang Phrabang, Vietianne and Champassack. These kingdoms reserved their independence till 1779, when Siam invaded them. To avoid war with the French, the Siamese king ceded lands including the present territory of Laos to them, and these territories were incorporated into French Indochina in 1893. Under the French control, the capital (Vieng Chan) was changed to Vientiane. Following a short Japanese occupation during World War II, the country declared its independence in 1945. However the French control remained until 1954, when Laos gained full independence as a constitutional monarchy under the rule of King Sisavak Vong. In 1975, the communist Pathet Lao, backed by the Soviet Union and the North Vietnamese Army, overthrew the royalist government, forcing King Savang Vatthana to abdicate on December 2, 1975 and sent him to a re-education camp.

Method and material

The studied material was captured by Dr. Eduard Jendek, Dr. Ondrej Šauša and Dr. Roman Hergovits beetle specialists during their serial expeditions to different provinces of Laos in 1997, 1998, 1999 and 2004.

The sawfly fauna of Laos has not been studied yet. Only few papers were published in the early twentieth century (Turner 1919 and 1920) about Indochina, including the present territory of Laos, based on the results of the Vitalis de Salvaza expedition.

Both authors are authors of the new taxa, i.e., Haris and Roller.

Results

Sawflies from Laos

Athlophorus placidus (Konow, 1898): 1 male, Ban Nape env., 18° 20' N, 105° 08' E, 07-16. 05. 2004, at 400 m. New record for Laos. For identification, see Malaise, 1947.

Brykella heinrichi Malaise, 1943: 1 male, Attapu prov., Bolaven Plateau, 18-30. 04. 1999, 15 km SE of Ban Huaykong, Nong Lom (lake) env., 15° 02' N, 106° 35' E, alt. 800 m. Penis valve in Fig. 6. New record for Laos. Description in Malaise, 1943.

Caliroa cyanea Malaise, 1961: 1 female, 20 km NW. of Louang Namtha, 21° 09.2' N, 101° 18.7' E, alt. 900 ±100 m., 05-11. 05. 1997. New record for Laos. For identification, see Malaise, 1961.

Caliroa siamana Togashi, 1982: 1 female, 70 km NE. of Vientiane, Ban Phabat env. 150 m., 18° 18.1' N, 103° 10.9' E, 27. 04. -01. 05. 1997. New record for Laos. For identification, see Togashi, 1982.

Canonias assmensis Rohwer, 1915: 1 female, 20 km NW. of Louang Namtha, 21° 09.2' N, 101° 18.7' E, alt. 900 ±100 m., 06-11. 05. 1997. New record for Laos. For identification, see Malaise, 1947.

Canonias inopinus Konow, 1900: 2 males, 20 km NW. of Louang Namtha, 21° 09.2' N, 101° 18.7' E, alt. 900 ±100 m., 06-11. 05. 1997. New record for Laos. For identification, see Malaise, 1947.

Monophadmus rivalis Konow, 1906: 1 female, Nakai env. 22. 05.-08. 06. 2001. New record for Laos. For identification, see Haris, 2006.

Neostromboceros coxalis (Smith, 1857): 2 females, Ban Nape env., 18° 20' N, 105° 08' E, 07-16. 05. 2004, at 400 m. New record for Laos. For identification, see Malaise, 1944.

Nesoselandria albotegularissima Haris, 2006: 1 female, 20 km NW. of Louang Namtha, 21° 09.2' N, 101° 18.7' E, alt. 900 ±100 m., 24-30. 05. 1997, 1 male, 1 female, Ban Nape env., 18° 20' N, 105° 08' E, 07-16. 05. 2004, at 400 m. New record for Laos. For identification, see Haris, 2006.

Nesoselandria birmana Malaise, 1944: 2 females, Attapu prov., Bolaven Plateau, 18-30. 04. 1999, 15 km SE of Ban Huaykong, Nong Lom (lake) env., 15° 02' N, 106° 35' E, alt. 800 m. New record for Laos. For identification, see Malaise, 1944.

Nesoselandria devriesi Haris, 2006: 1 female, Khammouan prov., Ban Khoun Ngeun env., alt. 250 m, 18° 07' N, 104° 29' E, 20-29. 05. 2004: 1 female, Ban Nape env., 18° 20' N, 105° 08' E, 07-16. 05. 2004, at 400 m. New record for Laos. For identification, see Haris, 2006.

Nesoselandria sulciceps Malaise, 1944: 2 females, 3 males, Bolikhamsai prov., Ban Nape, Kaew Nua Pass, 18. 04. - 01. 05. 1998, 600 m., N 18° 22.3', E 105° 09.1'. New record for Laos. For identification, see Malaise, 1944.

Tenthredo megacephala Cameron 1899 (colour variation: *T. megacephala* ssp. *elegans* Mocsáry, 1909): 1 female, Ban Nape env., 18° 20' N, 105° 08' E, 07-16. 05. 2004, at 400 m. New record for Laos. For identification, see Malaise, 1945.

Tenthredo margaretella Rohwer, 1916: 1 female, Ban Nape env., 18° 20' N, 105° 08' E, 07-16. 05. 2004, at 400 m. New record for Laos. For identification, see Malaise, 1945.

Description of the new species

Apeptamena abrahami spec. nov.

(figs. 4 and 18)

Male. Body black. White to yellowish-white: scape, pedicel, palpi, cenchri, labrum, tegulae, parapteron and legs from base of coxae till tarsi (except last tarsal segments of anterior and middle tarsi and last 2 tarsal segments of hind tarsus that infusate). Wings hyaline. Costa, venation and stigma dark brown. Number of cubital cells 3. Basalis and first recurrent vein convergent. Basalis nearly straight, hardly bent at base. Cubital vein gently bent at its base without spurious stump. Hind wing with 2 closed middle cells. Anal cell sessile with small stump at apex. Nervellus meets apex of anal cell. Head smooth and shiny, simple, without postoccipital carina and strongly contracted behind eyes. Cubital and basal vein meets on subcosta away from each other. Clypeus widely, roundly emarginated. Clypeal emargination about 0.4x as deep as clypeal median length. Malar space linear. Labrum short, anterior margin widely rounded (not subtriangular!). Ratios of antennal segments: 11 : 10 : 32 : 30 : 22 : 13 : 12 : 11 : 12. Pedicel 1.5x longer than wide. Scape about 1.35x longer than wide. Antenna filiform and about as long as head and thorax combined. Frontal area indistinct, rounded, unkeeled pit placed right below anterior ocellus. OOL : POL : OCL : 11 : 7 : 18. Lateral supraantennal pits large and rounded, about as large as diameter of front ocellus. Middle supraantennal pit rounded and slightly smaller. Thorax smooth and shiny. Presterna distinct. Cenchri rounded. Abdominal segments smooth and shiny. Body covered with short, white sparse hairs. Inner first tibial spur forked at its end. Ratio of hind tarsal segment without claw: 35 : 13 : 6 : 5 : 14. Penis valve in Fig. 4. Claw in Fig. 18. Basal lobe if exist (not clearly visible) hidden. Body elongated. Length: 5.6 mm. Female unknown.

Holotype: male. Laos north, 20 km NW. Louang Namtha, N 21° 09.02', E 101° 18.7' GPS, alt 900 ± 100 m., 05-11. 05. 1997, E. Jendek, O. Sausa leg. The holotype is deposited in the hymenoptera collection of the Hungarian Natural History Museum.

In interesting way, the new species is similar to *Anapeptamena darjeelingensis* Saini, Smith and Saini, 2003. The differences are: in the new species scape, pedicel, parapteron and entire anterior leg white; these parts are black in *A. darjeelingensis*. In the new species, labrum small and rounded while in *A. darjeelingensis* the labrum widened and subtriangular. The separation of the genera *Anapeptamena* Konow, 1898 and *Apeptamena* Malaise, 1944 are not adequate, needs generic revision. In *Anapeptamena* the mandible strongly bent, however this feature is completely hidden, not visible in the holotype of this new species. The differences are small and really negligible between the 2 genera. As Malaise wrote: "*Apeptamena*...occupies an intermediate position between *Anapeptamena* Konow and *Nesoselandria* Rohwer. From *Anapeptamena* Konow this genus may be (not surely!) distinguished by the shape of mandibles (no other separating feature!)". The reason, that I put this species into the genus *Apeptamena*, its penis valve is divided into right and left lobes (as they figured in NIE and WEI, 1997 and 1998), the transversal lobe is missing and hind margin of penis valve without denticles (in opposite of the figure of SAINI, SMITH and SAINI 2003).

Athlophorus anjou **spec. nov.**
(figs. 10, 19 and 20)

Head white including labrum, clypeus, basal half of mandibles but temples, vertex apical half of mandibles (except black apex) reddish yellow. Vertex, frontal area and supra-clypeal area with special black pattern (see Fig. 20) composed of 2 triangles lateral to frontal area and one reverse triangle on vertex. Between this 3 triangles lily-shaped spot placed. Clypeus with narrow, black upper margin and small trapezoid brown spot connected to this margin in middle of upper third of clypeus. Posterior part of head (behind vertex) black and widely margined with reddish yellow. Occipital carina black, visible only on lower third of head. Upper parts of head without postoccipital carina. Postocellar furrows black. Scape whitish with basal reddish yellow smudge. Base of pedicel reddish yellow with whitish basal and brown dorsal spot. Antennal segments 3-5 reddish yellow but apex of segment 5 black. Antennal segments 6-9 black with small white spots on ventral apices of segments. Palpi brown but 2 apical segments of maxillary palp whitish below. Pronotum black with wide white margin around. Whitish oval spot with reddish suffusion placed in middle of lateral part of pronotum. Tegula white. Anterior lobe of mesonotum reddish yellow with white hind V-shaped margin and black T-pattern (black middle longitudinal furrow of anterior lobe and narrow anterior margin form the T-shaped pattern). Lateral lobes with three wide black band connected by narrow anterior black margin of lateral lobe. Posterior sloping part of lateral lobes black. Remaining part of lateral lobes white but between the three band, reddish yellow. Narrow white margin separates mesonotum from metanotum. Mesoscutellum and metascutellum white, mesoscutellar appendage black. Metanotum black but cenchri and spots behind cenchri black. Metanotum separated from first abdominal tergite (propodeum) by narrow white margin. Prosternum black with large lateral whitish orange subtriangular spots. Mesosternum and metasternum black. Mesopleuron black with whitish-orange, wide horizontal band and hind longitudinal wide margin. Metepimeron black but its lower third white. Metepisternum white with larger rounded black spot above and smaller, anterior black spot. Coxae with narrow brown basal margins and short brown longitudinal lines. Trochanters white but each first segment of trochanters with large brown basal spot. Fore femur reddish yellow below and brown above with brown base, second femur similar but with short white strip above. Third femur brown below and orange-brown above but basally white above. Anterior surface of fore and middle tibiae reddish white otherwise brown. Hind tibia brown but reddish white above. Fore tarsus whitish below and brown above. Middle tarsus whitish above and brown below but last tarsal segment entirely brown. Third tarsus whitish but ventral 2/3 of basitarsus brown. Wings hyaline. First cubital cell entirely, and upper margins of radial cells and lower and inner margins of second cubital cell brown infuscate. Venation dark brown, costa and stigma yellow. First abdominal tergite (propodeum) white in middle with black margin around. Second tergite white with basal black margin. Third tergite black with white narrow hind margin but deflexed side of tergite entirely white. Tergite 4 whitish-orange with black basal margin triangularly prolonged towards the centre of tergite 4. Tergite 5 and 6 black with lateral reddish yellow triangular spots (not confluent). These spots form narrow hind margin in middle of 6th tergite. Tergite 7-10 whitish-orange with white middle part, tergites 7-9 with black basal margin laterally widened into triangles but not confluent (Fig. 19). Basal 3 sternites white, apical 3 sternites black but hypopygium with triangularly widened yellowish white postero-lateral margin and sternites 4 and 5 with narrow white hind margins. Hypopygium with small rectangular incision in middle. Sawsheath

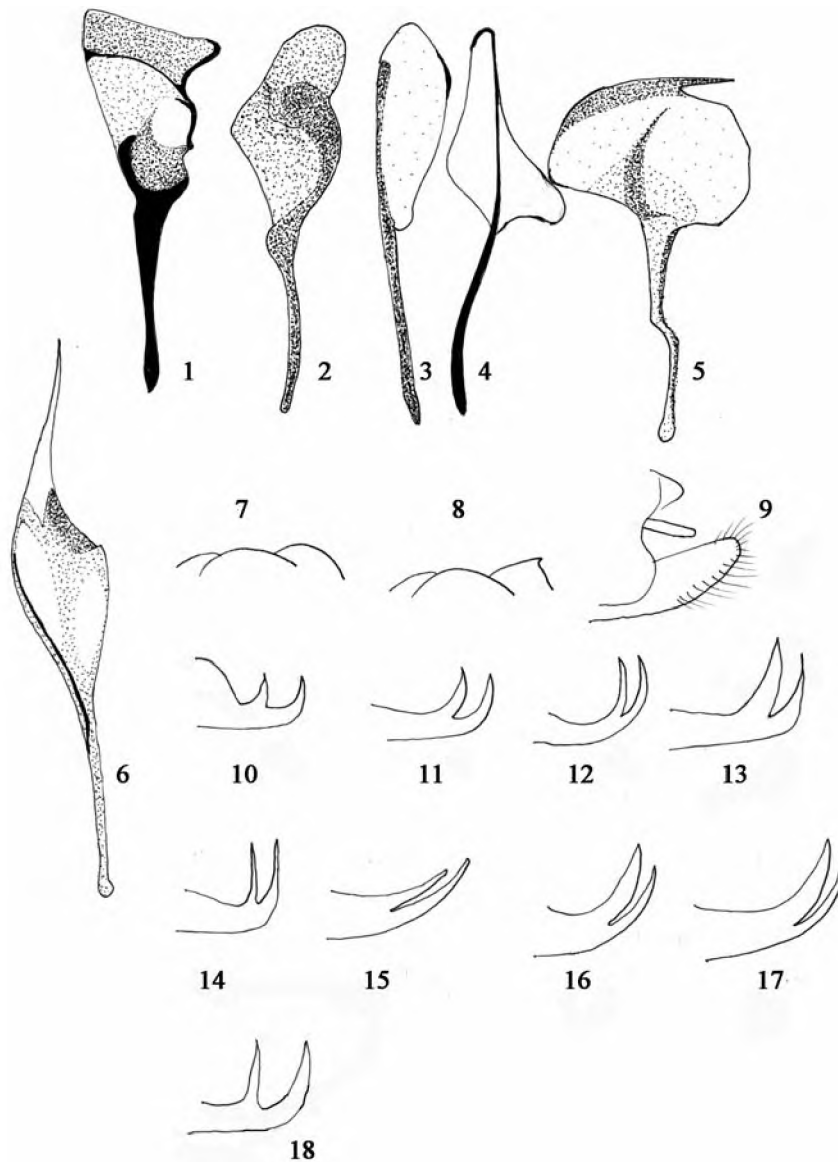


Fig. 1: Penis valve of *Tenthredo saringeri* spec. nov., Fig. 2: Penis valve of *Tenthredo jendeki* spec. nov., Fig. 3: Penis valve of *Rocalia lanxangensis* spec. nov., Fig. 4: Penis valve of *Apeptamena abrahami* spec. nov., Fig. 5: Penis valve of *Xenapatidea nigrissima* spec. nov., Fig. 6: Penis valve of *Brykella heinrichi* Malaise, 1943, Fig. 7: Mesoscutellum of *Xenapatidea jendeki* spec. nov. in lateral view, Fig. 8: Mesoscutellum of *Xenapatidea nigrissima* spec. nov. in lateral view, Fig. 9: Sawsheath of *Beleses abrahami* spec. nov. in lateral view, Fig. 10: Claw of *Athlophorus anjou* spec. nov., Fig. 11: Claw of *Beleses abrahami* spec. nov., Fig. 12: Claw of *Blennocampa laosensis* spec. nov., Fig. 13: Claw of *Macrophya hergovitsi* spec. nov., Fig. 14: Claw of *Rocalia lanxangensis* spec. nov., Fig. 15: Claw of *Tenthredo jendeki* spec. nov., Fig. 16: Claw of *Tenthredo sausiai* spec. nov., Fig. 17: Claw of *Tenthredo saringeri* spec. nov., Fig. 18: Claw of *Apeptamena abrahami* spec. nov.

whitish with narrow upper margin on basal half and small black spot at base in middle. Temple and vertex minutely, moderately deeply and moderately densely punctured, shiny. Frontal area moderately roughly punctured with moderately deep and dense punctures, shiny. Clypeus broadly emarginated, clypeal emargination about 0.25x as deep as clypeal median length. OOL : POL : OCL: 17 : 6 : 19. Ratios of antennal segments: 12 : 9 : 28 : 24 : 19 : 10 : 9 : 8 : 9. Head subparallel behind eyes. Gena about as long as half of diameter of front ocellus. Mesonotum densely, finely and moderately deeply punctured with small punctures, shiny. Mesoscutellum finely, minutely and moderately densely punctured, shiny. Mesoscutellar appendage and metascutellum smooth and shiny. Mesoscutellum flat. Mesopleuron with minute, hardly visible and dense punctures, moderately shiny. First abdominal tergite smooth and shiny. Other tergites with very fine and shallow undefined surface sculpture, shiny. Sawsheath subtriangular above with long hairs curved inwards. Tarsal claw without basal lobe, inner and apical teeth subequal but inner tooth wider (Fig. 10). Length: 9.7 mm. Male unknown.

Holotype: female. Laos south, Attapu prov., Bolaven Plateau, 18-30. 04. 1999, 15 km SE of Ban Huaykong, Nong Lom (lake) env., 15° 02' N, 106° 35' E, alt. 800 m., E. Jendek and O. Sausa leg. The holotype is deposited in the hymenoptera collection of the Hungarian Natural History Museum.

The new species can be easily distinguished from all other species of the genus by the unique and very specific colour-pattern of the head: lily shaped spot between 3 triangles. Etymology: the lily flower is the emblazonry (heraldic element) of the Anjou royal dynasty.

Beleses abrahami **spec. nov.**
(figs. 9, 11 and 21)

Female. Head pale brownish-fulvous but black behind temples and vertex. Vertex and frontal area covered with large black spot reaching down to the base of antennae. Vertex connected with eyes by 2 black strips. Narrow upper orbits and apical half of mandible also black. Orbits (except small upper orbits), mouthparts, supraantennal tubercles, gena, area between antennae and most of temples remain pale. Apical four antennal segments white although very apex of last segment black. Basal five antennal segments black except ventral side of scape that pale brownish-fulvous. Thorax, including cenchri entirely fulvous (Fig. 21). Hind wing with one closed middle (M) cell. Four anterior legs whitish fulvous. Small spot outside of apex of middle tibia and last 2 apical segments of middle tarsi brown. Hind coxa and trochanter whitish fulvous. Hind femur, apical third of hind tibia and narrow base of hind basitarsus black. Tibia and tarsus otherwise white. Last 2 tarsal segments and a longitudinal small spot on hind coxa brown. First and tergites 4-8 brownish-black. Second, most of third (except middle brown spot), 9th (except lateral brown spots) and 10th tergites whitish. Sternites whitish. Vento-lateral part of tergites (visible only in lateral and ventral sides) whitish except tergite 5 that brownish black. Sawsheath entirely brownish-black with adjacent black spots on apical sternites. Sawsheath in lateral view in Fig. 8. Wings hyaline, stigma, venation blackish brown. Basal 80% of costa yellow.

Head convex and slightly narrowed behind eyes. Frontal area densely, deeply punctured with small shiny interspaces. Temples moderately densely, deeply punctured, shiny. Clypeus truncate. Inner margins of eyes slightly convergent. Middle and lateral supraantennal pits large, rounded and shallow. Pentagonal frontal area not marked.



Fig. 19: *Athlophorus anjou* spec. nov. holotype (photo: Haris)



Fig. 20: Head and thorax of *Athlophorus anjou* spec. nov. holotype (photo: Haris)



Fig. 21: *Beleses abrahami* spec. nov. holotype (photo: Haris)



Fig. 22: *Blennocampa laosensis* spec. nov. holotype (photo: Haris)



Fig. 23: *Macrophya hergovitsi* spec. nov.
holotype (photo: Haris)

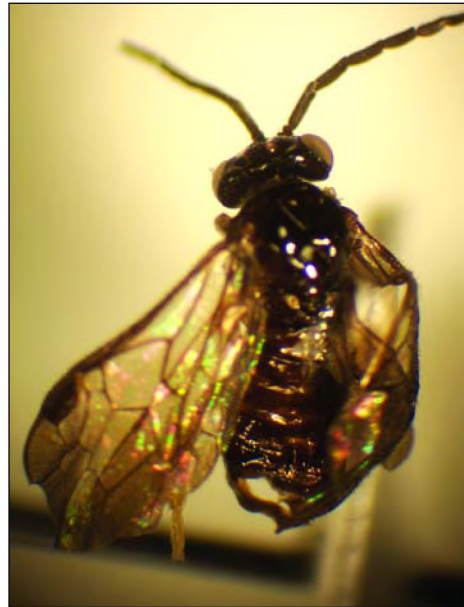


Fig. 24: *Rocalia lanxangensis* spec. nov.
holotype (photo: Haris)



Fig. 25: *Tenthredo jendeki* spec. nov.
holotype (photo: Haris)



Fig. 26: *Tenthredo sausiai* spec. nov.
holotype (photo: Haris)



Fig. 27: *Tenthredo saringeri* spec. nov.
holotype (photo: Haris)



Fig. 28: *Xenapatidea jendeki* spec. nov.
holotype (photo: Haris)



Fig. 29: *Xenapatidea nigrissima* spec. nov.
holotype (photo: Haris)

Postoccipital furrows deep and parallel but not reaching hypothetical hind margin of head. OOL : POL : OCL: 12 : 11 : 15. Ratio of antennal segments: 15 : 14 : 44 : 51 : 34 : 16 : 14 : 12 : 11. Mesonotum and mesoscutellum moderately densely, moderately deeply and uniformly punctured, finely granulated between punctures, moderately shiny. Mesoscutellar appendage with few punctures, its surface finely granulated, dully shiny. Metascutellum unpunctured finely granulated, dully shiny. Mesopleuron moderately densely, deeply punctured, moderately shiny. Mesosternum shiny, with moderately dense, deep and small punctures. First abdominal segment smooth and shiny. Second and third sparsely punctured. The other tergites with moderately dense punctures. Head and thorax covered with sparse, short and whitish pubescence. Length of hind basitarsus : length of inner hind tibial spur : apical width of hind tibia: 72 : 23 : 17. Claw without basal lobe, inner tooth slightly shorter than apical or subequal (Fig. 11). Sawsheath in Fig. 8. Length: 11.0 mm. Male unknown.

Holotype: female. C. Laos, Ban Nape env., 18° 20' N, 105° 08' E, 07-16. 05. 2004, at 400 m, E. Jendek and O. Sausa leg. The holotype is deposited in the hymenoptera collection of the Hungarian Natural History Museum.

The new species is related to *Beleses satonis* Takeuchi, 1929; *B. atrofemoratus* Turner, 1920; *B. fulvus* Cameron, 1877 and *B. stigmatalis* (Cameron, 1876) having fulvous head and thorax. The abdomen of the new species is black and white while all other relatives has fulvous abdomen without or with minimal black pattern. The new species is dedicated to Levente Ábrahám, Somogy County Museum.

Blennocampa laosensis **spec. nov.**
(figs. 12 and 22)

Female. Head black, body dark brown. White: apices of anterior coxa, apical half of middle and hind coxae, all trochanters, hind femur entirely, all tibiae (except apical brown ring on hind tibia), fore and middle tarsi, dorsal surface of first 3 hind tarsal segments, palpi and tegula (Fig. 22). Cenchri whitish brown. Wings slightly infuscate, costa, stigma and venation brown. Ratios of antennal segments: 10 : 9 : 21 : 19 : 17 : 10 : 8 : 8 : 9. OOL : POL : OCL: 10 : 9 : 9. Antenna as long as head and thorax combined including propodeum. Head moderately deeply and moderately densely punctured, moderately shiny. Malar space linear. Inner margins of eyes slightly convergent. Head without postoccipital carina. Postoccipital furrows subparallel (hardly divergent) reaching hind margin of head. Frontal area unmarked (not raised or carinated). Middle and lateral supraantennal pits rounded and about as large as front ocellus. Clypeus deeply emarginated. Clypeal emargination about half as deep as clypeal median length. Lateral and middle supraantennal pits are connected by deep V-shaped furrow. Thorax smooth and shiny. Prepectus absent. Mesoscutellum flat. Costa strongly swollen. Number of cubital cells: four. Basalis and first recurrent vein parallel. Stigma wide and rounded. Nervulus meets middle of first discoidal cell. Basal and cubital vein meets in one point. Basal stub of anal vein nearly straight, very slightly curved inwards, simple (not forked). Hind wing without closed middle cell. Anal cell with long petiole. Nervellus of hind wing perpendicular to petiole. Abdomen smooth and shiny. Triangular membrane of propodeum large, trapezoid. Length of inner hind tibial spur : length of hind basitarsus : apical width of hind tibia: 2 : 7 : 2. Sawsheath long, triangular with white and curved hairs. Claws without basal lobe, subapical tooth as long as apical (Fig. 12). Length: 4.1 mm.

Holotype: female: Laos C., Bolikhamsai prov., Ban Nape, Kaew Nua Pass, 18. 04. - 01. 05. 1998, 600 m., N 18° 22.3', E 105° 09.1' GPS, E. Jendek, O. Sausa leg. The holotype is deposited in the hymenoptera collection of the Hungarian Natural History Museum.

Surprisingly, the species is a typical member of the monotypic Palaearctic genus *Blennocampa* Hartig, 1837 and closely related to *Blennocampa phyllocolpa* (= *Blennocampa pusilla* (Klug, 1814)). Differences: *Blennocampa phyllocolpa* is extensively black including all coxae, trochanters and basal 80% of femora. Hind legs extensively white in the new species. The 3rd antennal joint 1.5x longer than 4th in *B. phyllocolpa* but they are subequal in the new species. Furthermore, supraantennal pits are not connected by deep V-shaped furrow in *B. phyllocolpa*.

Macrophya hergovitsi **spec. nov.**
(figs. 13 and 23)

Female. Body, including antenna black. White: labrum, basal half of mandibles, clypeus, palpi (except 2nd and 3rd joints of mandibular palp that dorsally brown), apical spot of scape, anterior coxa, middle coxa (except small basal brown spot), hind coxa (except large basal black spot), all trochanters, anterior side of fore femur, base and apex of middle femur, base of third femur, tibiae (except black longitudinal line on fore tibia, apical black ring of middle tibia, black basal and apical third of hind tibia), fore and middle tarsi below, narrow hind margin of pronotum, small hind corner of anterior mesonotal lobes, anterior 2/3 of mesoscutellum (mesoscutellar appendage black), metascutellum, cenchri, membrane of propodeum, lateral confluent spots on tergite 2-3 and 7-8 and dorsal part of tergite 9 (Fig. 23). Wings hyaline although apical third of fore wing slightly but clearly infuscate. Stigma, costa and venation brownish black. Anal cell of fore wing contracted, without crossvein. Ratio of antennal segments: 15 : 9 : 47 : 27 : 23 : 17 : 14 : 12 : 14. OOL : POL : OCL: 10 : 2 : 7. Head very densely, deeply and roughly punctured with moderately large punctures on frontal and supraclypeal area, matt but vertex, temples and ocellar area moderately densely and deeply punctured, shiny. Malar space linear. Inner margins of eyes convergent. Postocellar furrows divergent, reaching hind margin of head. Head contracted behind eyes. Postoccipital carina missing. Mesonotum, mesoscutellum, mesoscutellar appendage deeply, densely and uniformly punctured with moderately large punctures, hardly shiny. Mesopleuron very densely and deeply punctured (without interspaces between punctures), matt. Metascutellum smooth and shiny. Mesoscutellum flat. Metepimeron with oval-shaped basin. Abdominal segments with very fine microstriation between punctures. First abdominal segment hardly and very slightly punctured. Other tergites with moderately dense, moderately large and shallow punctures especially on anterior halves of tergites. Claws without basal lobe. Subapical tooth of claws much wider and longer than apical (Fig. 13). Length: 10.2 mm.

Holotype: female: Laos C., Bolikhamsai prov., Ban Nape, Kaew Nua Pass, 18. 04. - 01. 05. 1998, 600 m., N 18° 22.3', E 105° 09.1' GPS, R. Hergovits leg. Paratype: female: Laos north, 20 km NW. Louang Namtha, N 21° 09.02', E 101° 18.7' GPS, alt 900 ± 100 m., 24-30. 05. 1997, E. Jendek, O. Sausa leg. The holotype is deposited in the hymenoptera collection of the Hungarian Natural History Museum, the paratype is in the entomological collection of the Slovak National Museum, Natural History, Bratislava.

The new species resembles to *Macrophya parviserrula* Chen and Wei, 2005 but the lateral large spots on abdominal segments 2-3 and 7-8 clearly differ the 2 species. In Malaise's key (MALAISE, 1945), the new species runs to *M. histrio* Malaise, 1945. The differences are: postocellar furrows are almost wanting, postocellar area, V-shaped border of mesonotal middle lobe, small elongate dots on lateral lobes, a broad irregular zigzag band over the upper part of mesopleuron, a broad band on each side of abdomen-over all tergites, except 1 are yellowish-white in *M. histrio*; in the new species the postocellar furrows are deep and divergent, the above mentioned yellowish-white spots are missing and abdomen with lateral, confluent white spots on tergites 2-3 and 7-8. *M. histrio* is smaller, only 8.5 mm long.

Rocalia lanxangensis **spec. nov.**
(figs. 3, 14 and 24)

Male. Body black including antenna and mouthparts only palpi and entire legs (except black base of coxae) white (Fig. 24). Head and thorax smooth and shiny but clypeus and supraclypeal area moderately densely punctured with deep punctures. Temples strongly sunken lateral to vertex therefore hind margin of inner temples and vertex elevated similarly to some *Nesoselandria* species (pseudocarina) but this pseudocarina clearly widened at vertex. Other parts of temples removed from vertex simple, not sunken. Frontal area rounded oval and bordered by keels. Supraantennal pits rounded and about as large as front ocellus. Middle supraantennal pit deep, lateral supraantennal pits shallow. OOL : POL : OCL: 4 : 2 : 3. Ratio of antennal segments: 6 : 3 : 14 : 12 : 11 : 11 : 10 : 9 : 9. Antenna as long as head, thorax, first (propodeum) and second abdominal segments combined. Antennal segments strongly flattened. Pedicel much wider than long. Clypeus truncate. Inner margins of eyes subparallel. Gena linear. Temples short and contracted behind eyes. Mesoscutellum flat. Cenchri small, hardly oval, nearly rounded and brownish. Wings infusate. Stigma, costa and venation dark brown. Stigma widened. Number of cubital cells: 4. Basalis and first recurrent vein convergent. Anal cell of fore wing divided by oblique crossvein about 60°. Hind wing without marginal vein but with 2 closed middle cells. Anal cell of hind wing with long petiole, nervellus perpendicular to petiole. First abdominal tergite with large triangular membrane. Abdominal tergites smooth and shiny. Claw without basal lobe, subapical tooth long subequal with apical (Fig. 14). Penis valve in Fig. 3. Length: 4.1 mm. Female unknown.

Holotype: male. Laos north, 20 km NW. Louang Namtha, N 21° 09.02', E 101° 18.7' GPS, alt 900 ± 100 m., 05-11. 05. 1997, E. Jendek, O. Sausa leg. The holotype is deposited in the hymenoptera collection of the Hungarian Natural History Museum.

The new species related to *Rocalia gibbera* Naito et Huang, 1992. The differences are: *R. gibbera* has angularly elevated prescutum and mesoscutellum with short marginal spines. *R. lanxangensis* spec. nov. has entirely flat prescutum and mesoscutellum with a row of deep punctures on its hind margin

Tenthredo jendeki **spec. nov.**
(figs. 2, 15 and 25)

Male. Head whitish straw coloured with black markings (Fig. 25). Black: area behind temple and vertex, large frontal area prolonged towards to upper hind margin of eyes and to central part of vertex covering the supraantennal area and supraantennal tubercles.

Antenna black, scape and pedicel whitish straw. Pronotum black with narrow hind and lateral straw coloured margin. Tegula straw with black apex. Dorsal part of thorax black, whitish straw: V shaped pattern on middle lobes of mesonotum, longitudinal line on lateral lobe, anterior spot of mesoscutellum, sloping part of lateral lobes, mesoscutellar appendage and 2 elongated spot on base of metanotum straw. Cenchri whitish. Mesopleuron straw coloured with wide anterior and posterior black margin connected with an oblique black band. Upper 2/3 of metepimeron straw, lower 1/3 black. Other parts of thorax straw. First abdominal segment (propodeum) black with 2 straw spots next to the triangular membranous patch. Tergites 2-4 brown, other tergites dark brown but last tergite whitish with brown basal spots. Tergites 2-7 with pale margin. Tergite 8 with pale apical triangle in middle and 2 pale lateral spots. Sternites and ventral part of abdominal tergites straw coloured. Coxae whitish with longitudinal black line. Trochanters whitish. Anterior four femora whitish with small apical black line on middle femur. Hind femur black above and whitish below. Middle and hind tarsi blackish brown. Fore tarsus whitish, segments with brown apical rings. Wings hyaline, with slightly infuscate apex. Costa yellow. Stigma yellow with small basal brown spot. Venation dark brown. Head contracted behind the eyes with narrow, hardly visible postoccipital carina. Head shiny with sporadic deep punctures. OOL : POL : OCL: 17 : 6 : 14. Ratio of antennal segments: 16 : 8 : 35 : 20 : 19 : 14 : 12 : 11 : 11. Clypeus roundly emarginated, clypeal emargination about 1/3x as deep as clypeal median length. Mesonotum moderately sparsely punctured with small, moderately deep punctures, shiny. Basal third of middle mesonotal lobes sparsely punctured shiny. Mesoscutellum sporadically punctured with small, moderately deep punctures, shiny. Mesoscutellar appendage and metascutellum smooth and shiny. Mesopleuron smooth and shiny only in middle with larger and sparse punctures, shiny. Mesoscutellum bluntly raised. Mesopleuron hardly elevated. Mesosternum without thorn. First abdominal tergite smooth and shiny. Other tergites with very fine undefined surface sculpture, shiny. Subapical tooth of claw slightly shorter than apical (Fig. 15). Penis valve in Fig. 2. Length: 11.8 mm. Female unknown.

Holotype: male. C. Laos, Ban Nape env., 18° 20' N, 105° 08' E, 07-16. 05. 2004, at 400 m, E. Jendek and O. Sausa leg. The holotype is deposited in the hymenoptera collection of the Hungarian Natural History Museum.

The new species has no real close relative. *Tenthredo flavisternum* Saini and Vasu, 1999 and *Tenthredo malimilova* Wei, 2005 has subtriangular shaped penis valve but without any internal sclerotised structure. The new species has clearly convex anterior margin and dark internal sclerotised sculpture as it figured in Fig. 2. *T. flavisternum* has ferruginous abdomen and its legs are also extensively reddish. The new species is straw coloured with black markings without any reddish. *T. malimilova* has mesopleuron coarsely punctured and hind femur is black. The new species has smooth and shiny mesopleuron, only in the middle with sporadic large punctures, hind femur black above and whitish below.

Tenthredo sausai **spec. nov.**
(figs. 16 and 26)

Female. Body entirely yellow. Black: apex of mandible, antennal segments 2-9, longitudinal strip on scape, dorsal part of tergites 6-8, 2 lateral spots on tergite 9, apical part of ovipositor, hind tarsus and apical third of hind tibia (Fig. 26). The black colour of hind

tibia dorsally elongated up to 2/3 of tibial length. Costa, stigma and venation yellow. Wing yellowish hyaline. Apical quarter of fore and hind wings infusate. Infuscation starting from apex of stigma and become darker on radial cells. Head concave and narrowed at hind corners of temples. Head with well developed occipital carina. Head with moderately dense and moderately deep punctures, shiny. OOL : POL : OCL: 24 : 10 : 23. Ratios of antennal segments: 25 : 14 : 60 : 60 : 48 : 38 : 27 : 26 : 27. Postocellar furrows slightly divergent reaching hypothetical hind margin of head. Clypeus shallowly emarginated. Clypeal emargination about 1/4x as deep as clypeal median length. Mesonotum moderately densely, uniformly and moderately deeply punctured, shiny. Mesoscutellum sporadically punctured with moderately large and deep punctures, shiny. Mesoscutellar appendage and metascutellum smooth and shiny. Mesopleuron moderately densely punctured with moderately large and deep punctures, shiny. Mesoscutellum acute and pyramidally elevated. Mesopleuron nearly flat. Mesosternum without thorn. First abdominal tergite smooth and shiny, other tergites with very fine surface sculpture, shiny. Subapical tooth of claw thicker and slightly longer than apical (Fig. 16). Length: 15.6 mm. Male unknown.

Holotype: female. North Laos, 15 km NW. Louang Namtha, 21° 07.5' N, 101° 21' E, 13-24. v. 1997, 750–100 m., E. Jendek and O. Sausa leg. The holotype is deposited in the hymenoptera collection of the Hungarian Natural History Museum.

The new species runs to *Tenthredo melanotarsus* Cameron, 1876 in Malaise's key (MALAISE 1945). The differences are: abdominal apex with bluish tinge and hind tibia entirely yellow, mesoscutellum subconvex with low and narrow longitudinal carina, mesonotum with shallow and indistinct punctures and, mesopleuron smooth and shiny in *T. melanotarsus*. The new species has abdominal apex without any bluish tinge, hind tibia extensively marked with black, mesoscutellum acute and pyramidally elevated, mesonotum moderately densely and moderately deeply punctured, mesopleuron with moderately dense, deep punctures.

The new species is also related to *Tenthredo concaviappendix* Wei, 1999. In *T. concaviappendix* the body is yellow brown, abdominal tergite 6 largely and tergites 7-10 are entirely black, infuscation of fore wing not reaching the stigma, hind tibia and ovipositor are brownish-yellow and the black coloration of the species with feeble blue tinge. Smaller: 11.0 mm. *Tenthredo sausiai* spec. nov. has the body yellow, black coloration without bluish tinge, tergites 9 and 10 are yellow with lateral black spots, tergites 6-8 are entirely black, hind tibia and ovipositor richly coloured with black. Larger. 15.6 mm.

Tenthredo saringeri **spec. nov.**
(figs. 1, 17 and 27)

Male. Head whitish-straw coloured with black markings (Fig. 27). Black: area behind temple and vertex, areas lateral to vertex, entire vertex, upper orbit narrowed downstairs behind eyes, large frontal area reaching inner margins of eyes. Antenna black, scape whitish-straw. Pronotum black with narrow hind and lateral straw coloured margin. Tegula whitish-straw. Dorsal part of thorax black, whitish-straw: V shaped margin of anterior lobes of mesonotum, large anterior spot on mesoscutellum, posterior margin of mesoscutellar appendage and posterior margin of metanotum. Cenchri whitish. Mesopleuron straw coloured with anterior and posterior black margin connected by horizontal black band on upper third. Narrow black line separates mesosternum from mesopleuron. Metepimeron whitish straw with black margin. Other parts of thorax whitish-

straw. First abdominal segment (propodeum) whitish-straw with large blackish rectangular spot in middle. In central part of this spot, whitish-straw triangle placed above triangular membranous patch. Tergites blackish brown, tergites 2-5 with whitish-straw basal margins. Tergite 9 pale straw with 2 brown lateral spots. Sternites and ventral part of abdominal tergites straw coloured. Coxae whitish with longitudinal black line on hind coxa. Trochanters whitish. Femora whitish with longitudinal brownish black lines on middle and hind femora not reaching femoral apex. Hind tibia black. Middle and anterior tibia whitish with longitudinal black strip. Hind tarsus black but last tarsal segment whitish below. Anterior tarsus brown above and whitish below. Middle basitarsus and second tarsal segment whitish with 2 longitudinal brown lines, other segments of middle tarsus brown. Wings hyaline, costa and stigma yellowish brown, venation dark brown. Head contracted behind eyes, carinated with complete postoccipital carina. Head nearly smooth and shiny with very sporadic shallow punctures on vertex and temples. OOL : POL : OCL: 18 : 5 : 13. Ratio of antennal segments: 15 : 10 : 39 : 40 : 30 : 26 : 21 : 20 : 18. Clypeus roundly emarginated, clypeal emargination about 1/3x as deep as clypeal median length. Mesonotum sporadically punctured with small punctures, shiny. Mesoscutellum sporadically punctured with small, moderately deep punctures, shiny. Mesoscutellar appendage and metascutellum smooth and shiny. Mesopleuron sparsely punctured with large and deep punctures, shiny. Mesoscutellum subpyramidal with long black hairs. Mesopleuron hardly elevated. Mesosternum without thorn. Tergites 1-3 smooth and shiny. Other tergites with very fine undefined surface sculpture, nearly smooth and shiny. Inner tooth of claw equal but thicker than apical (Fig. 17). Penis valve in Fig. 1. Length: 10.2 mm. Female unknown.

Holotype: male. North Laos, 15 km NW. Louang Namtha, 21° 07.5' N, 101° 21' E, 13-24. v. 1997, 750 100 m., E. Jendek and O. Sausa leg. The holotype is deposited in the hymenoptera collection of the Hungarian Natural History Museum.

There are 2 related species based on the morphological similarities of penis valve.

Tenthredo mandali Singh and Saini, 1987 has hind margin of penis valve strongly curved in S-shape and with basal spine as it figured in SINGH and SAINI 1987. *T. mandali* has sternites 2-5 white the others are black, anterior mesonotal lobes without V-shaped hind margin and mesopleuron black with narrow white margins; the new species has all sternites straw, anterior lobes of mesonotum with V-shaped hind margin, mesopleuron is straw coloured with anterior and posterior black margin connected by horizontal black band on upper third. Further differences see in SINGH and SAINI 1987.

Tenthredo yuasai Singh and Saini, 1988 has penis valve narrow, much narrower than that of the new species, additionally the top margin is strongly convex, the hind margin is gently S-shaped and the internal hole enlarged as it figured in SINGH and SAINI 1988. Furthermore, *T. yuasai* has sternites black with whitish spots on sternites 4-7 and anterior lobes of mesonotum without V-shaped hind margin. Further differences are in SINGH and SAINI 1988.

Xenapatidea jendeki **spec. nov.**
(figs.7 and 28)

Female. Head including mouthparts entirely black. Scape yellow with brown basal smudge. Pedicel yellow. Antennal flagellum black. Thorax dark brown (Fig. 28), only metepisternum black. Coxae dark brown with whitish apices. First joints of fore and middle trochanters brown, but that of third trochanter only basally brown. Second joint

of all trochanters whitish. First and second femora brown with whitish apices. Third femur whitish but widely brown in middle. Tibiae whitish with brown longitudinal line. Fore tarsus whitish, middle and hind tarsus brown. Abdomen and sawsheath black. Large membranous patch on first segment (propodeum), second tergite and sternite whitish. Fore wing infusate, only basally hyaline. Hind wing with infusate apex. OOL : POL : OCL: 18 : 8 : 30. Ratio of antennal segments: 18 : 12 : 34 : 25 : 19 : 16 : 13 . 13 : 14. Clypeus widely and deeply emarginated. Clypeal emargination about 2/3x as deep as clypeal median length. Head subparallel behind eyes. Occipital carina present reaching nearly up to the lateral sutures of vertex. Gena linear. Inner margins of eyes parallel. Head moderately densely punctured with small moderately deep punctures, shiny. Supraclypeal and frontal area densely and moderately roughly punctured, moderately shiny. Supraantennal pits and marked frontal area missing. Postoccipital furrows parallel reaching hind margin of head. Mesonotum with small, shallow and moderately dense punctures, shiny. Punctures on mesoscutellum larger and deeper, restricted to its posterior side, shiny. Mesoscutellar appendage and metascutellum smooth and shiny. Mesopleuron sporadically punctured, shiny. Mesoscutellum raised but absolutely blunt and rounded (unique feature in genus *Xenapatidea* ! Fig. 7.). Head and thorax covered with whitish pubescence about 2/3x as long as diameter of front ocellus on head and mesonotum but about as long as diameter of front ocellus on lateral part of head, mesopleuron and mesoscutellum. First abdominal tergite smooth and shiny, other tergites with shallow superficial sculpture, shiny. Claw with large basal lobe without inner tooth. Length: 10.7 mm. Male unknown.

Holotype: female. C. Laos, Ban Nape env., 18° 20' N, 105° 08' E, 07-16. 05. 2004, at 400 m, E. Jendek and O. Sausa leg. The holotype is deposited in the hymenoptera collection of the Hungarian Natural History Museum.

The new species runs to *Xenapatidea tricolor* Malaise, 1957 in Koch's key (KOCH 1996). There are 2 important separating features (and many other smaller differences): the thorax red in *X. tricolor* but dark brown in the new species. Mesoscutellum acutely pyramidal in *X. tricolor* but absolutely rounded in the new species.

Xenapatidea nigrissima **spec. nov.**
(figs. 5, 8 and 29)

Male. Head black including mouthparts and antenna, only narrow apices of scape and pedicel somehow yellowish and ventral part of segments 6-8 whitish Thorax dark brownish black (Fig. 29). Propodeum black with wide yellowish membranous patch. Second and third abdominal tergites and sternites yellowish white. Other abdominal segments dark brown. Coxae black except their whitish apices. First segment of fore and middle trochanters black, second segments white. Third trochanter whitish only base of first segment brown. Femora black with whitish apices. Tibiae whitish with narrow brown apical ring on hind tibia. Tarsi brown, anterior basitarsus whitish. Fore wing infusate but basally hyaline. Hind wing with infusate apex. OOL : POL : OCL: 16 : 7 : 27. Ratio of antennal segments: 15 : 10 : 31 : 23 : 19 : 13 : 12 . 12 : 14. Clypeus widely and deeply emarginated. Clypeal emargination about 2/3x as deep as clypeal median length. Head subparallel behind eyes. Occipital carina present reaching nearly up to the lateral sutures of vertex. Gena linear. Inner margins of eyes parallel. Head moderately densely punctured with small moderately deep punctures, shiny. Supraclypeal and frontal area densely and moderately roughly punctured, moderately shiny. Supraantennal

pits and clearly marked frontal area missing. Postoccipital furrows parallel reaching hind margin of head. Mesonotum with small, shallow and moderately dense punctures, shiny. Punctures on mesoscutellum larger and deeper, restricted to its posterior side, shiny. Mesoscutellar appendage and metascutellum smooth and shiny. Mesopleuron with dense, shallow and moderately large punctures, shiny. Mesoscutellum raised and pyramidally acute (Fig. 8). Head and thorax covered with whitish pubescence about 2/3x as long as diameter of front ocellus on most of head and mesonotum but about as long as diameter of front ocellus on lateral part of head, mesopleuron and mesoscutellum. First abdominal tergite smooth and shiny, other tergites with shallow superficial sculpture, shiny. Claw with large basal lobe without inner tooth. Penis valve in Fig. 5. Length: 9.7 mm. Female unknown.

Holotype: male. Laos north, 20 km NW. Louang Namtha, N 21° 09.02', E 101° 18.7' GPS, alt 900 ± 100 m., 05-11. 05. 1997, E. Jendek, O. Sausa leg. The holotype is deposited in the hymenoptera collection of the Hungarian Natural History Museum.

The new species closely related to *Xenapatidea rufoscutellata* Koch, 1996. The differences are: the new species has thorax brown and penis valve as in Fig. 5. *X. rufoscutellata* has reddish-yellow thorax and penis valve as it figured in KOCH 1996.

References

- HARIS, A. 2006: New sawflies (Hymenoptera: Symphyta, Tenthredinidae) from Indonesia, Papua New Guinea, Malaysia and Vietnam, with keys to genera and species. - Zoologische Mededelingen, Leiden 80 (2006) (1): 37-111.
- KOCH, F. 1996: Taxonomie, Phylogenie und Verbreitungsgeschichte der Tribus Xenapateini (Insecta: Hymenoptera: Tenthredinidae: Allantinae). - Entomologische Abhandlungen. Staatliches Museum für Tierkunde in Dresden, Leipzig 57(11): 225-260.
- MALAISE, R. 1943: Neue exotische Blattwespen. - Folium Entomologicum. Festschrift zum 60. Geburtstage von F. Bryk: 8-13
- MALAISE, R. 1944: Entomological Results from the Swedish Expedition 1934 to Burma and British India (Hymenoptera: Tenthredinoidea). Collected by René Malaise. The Tenthredinoidea of South-Eastern Asia. Subfamily II. Selandriinae. - Arkiv för Zoologie, Stockholm u. a. 35A(10): 1-58.
- MALAISE, R. 1945: Tenthredinoidea of South-Eastern Asia with a general zoogeographical review. - Opuscula Entomologica, Lund Suppl. 4: 1-288.
- MALAISE, R. 1947: Entomological Results from the Swedish expedition 1934 to Burma and British India. Hymenoptera: Tenthredinoidea. Collected by René Malaise. The Tenthredinoidea of South Eastern Asia. Part III. The Emphytus-Athlophorus Group. - Arkiv för Zoologie, Stockholm u. a. 39A(8): 1-39.
- MALAISE, R. 1961: New Oriental Saw-Flies (Hymen. Tenthred.). - Entomologisk Tidskrift, Stockholm 82(3-4): 231-260.
- NIE, H. & WEI, M. 1997: On the Genus Apeptamena Malaise of China (Hymenoptera: Selandriidae). - Journal of Central South Forestry University, Zhuzhou 17(Suppl.): 24-27.
- NIE, H. & WEI, M. 1998: Six new species of Selandriidae from Mt. Funiu (Hymenoptera: Tenthredinoidea). - Insect Fauna of Henan Province 2: 124-130.
- SAINI, M. S.; SMITH, D. R. & SAINI, T. P. 2003: Review of the Southeastern Asian sawfly genus Anapeptamena Konow (Hymenoptera: Tenthredinidae). - Proceedings of the entomological Society of Washington, Washington 105(3): 641-646.
- SINGH, D. & SAINI, M. S. 1988: Six new species of Tenthredo Linn. from the Western Himalayas (Insecta, Hymenoptera, Symphyta, Tenthredinidae). - Reichenbachia, Staatliches Museum für Tierkunde Dresden, Leipzig 25(28): 137-147.
- SAINI, M. S. & VASU, V. 1999: New Species of Tenthredo L. from India (Hymenoptera: Tenthredinidae). - Polskie Pismo Entomologiczne, Gdynia 68: 133-142.

- SINGH, D. & SAINI, M. S. 1987: Five new species of *Tenthredo* Linnaeus from Uttarkhand area (India) (Hymenoptera: Tenthredinidae). - *Deutsche entomologische Zeitschrift, Neue Folge*, Berlin 34(4-5): 397-405.
- TOGASHI, I. 1982: Tenthredinoidea Collected by the Zoological Museum, Copenhagen Expedition to Thailand. - *Kontyu*, Tokyo 50(4): 531-543.
- TURNER, R. E. 1919: On Indo-Chinese Hymenoptera collected by R. Vitalis de Salvaza II. - *The Annals and Magazine of Natural History, including Zoology, Botany, and Geology; Ninth Series*, London 3: 483-487.
- TURNER, R. E. 1920: On Indo-Chinese Hymenoptera collected by R. Vitalis de Salvaza. - IV. - *Annals and Magazine of Natural History*, London ser. 9, 5: 84-98.
- WEI, M. & XIAO, W. 2005: Tenthredinidae. - Pp. 456-517. - In: Jin, D. & Li, Z. (eds): *Insects from Xishui Landscape*. - Guiyang, Guizhou Science and Technology Publishing House.