

## On the *Trachyusa* Ruthe Species of the Carpathian Basin (Hym., Braconidae: Alysiinae)

By  
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Until now the genus *Trachyusa* RUTHE was monobasic. In 1838, A. H. HALIDAY named his new species "*Alysia aurora*". In 1854, RUTHE erected a new genus, together with a new species, named *Trachyusa nigriceps*. T. A. MARSHALL (1894: 503-504) writes about it as follows: "The name *Trachyusa* appeared to FÖRSTER too much like *Trachusa* JUR., a genus of bees, and he therefore invented a new name, *Cosmiocarpa Trachusa*, however, is not adopted by hymenopterists, as far as I know, and, besides, it is not the same as *Trachyusa*. For these reasons I have restored the name given by RUTHE." G. TASCHENBERG (1886) established first that *Trachyusa nigriceps* RUTHE, 1854, is synonymous with *Alysia aurora* HAL., 1838. Though in 1890 W. H. ASHMEAD described a new species as *T. americana* from U. S. A., the species does not belong to the genus *Trachyusa* RUTHE, but to *Bracon* F. (MUESERBECK-KROMBEIN-TOWNES, 1951, p. 163).

In the collection of the Hungarian Natural History Museum (Budapest), I found two valid new species of the genus *Trachyusa*. I named them *T. bucephala* sp. n. (9 ♀ and 18 ♂), and *T. szépligetii* sp. n. (1 ♀), and describe them in the followings, together with a key of the 3 known species. Thus *Trachyusa* RUTHE ceases to be a monobasic genus. In view of the fact that *T. americana* ASHMEAD is really a *Bracon*-species, *Trachyusa* seems to be a Palaearctic (endemic?) genus.

In the collection mentioned above, there is a further specimen probably representing a new species. Its data are as follows: *Trachyusa* sp., 1 ♂, M. (= Magas) Tátra, F. (= Felső) Hági, 1913, leg.: HORVÁTH. L. BIRÓ identified it as "*Trachyusa aurora* var. ♂". An examination of the characters (shape and colour of body, shape of stigma, *Cu*<sub>2</sub>, and 1st tergite, punctuation of 2-3rd tergites) shows, however, that they are not so stable as to base a new species on this single male.

The localities of the species are grouped in accordance with the zoogeographical subdivisions (MÓCZÁR, 1948) of the Carpathian Basin (Central Europe). The numbers given in the list (e.g. II/1, III/4) designate the zoogeographical districts of the Carpathian Basin. This method facilitates the general assessment of the specific ranges.

The designations of the alar veins and cells are abbreviated after FISCHER (1958, p. 52; 1962, p. 10).

### *Trachyusa* RUTHE

*Trachyusa* RUTHE, Stett. Ent. Ztg., 1854, p. 352.

*Cosmiocarpa* FÖRSTER, Verh. Naturh. Ver. Preuss. Rheinl. Westph., 1862, p. 264.

Head cubic or transverse, generally smooth and shiny. Mandible with three teeth, central tooth always larger than lateral ones. Ocelli forming an isosceles triangle, base somewhat narrower than height. Antenna about as long as body. Relative length of first two joints of flagellum variable.

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Thorax generally as long as abdomen, always narrower than head. Notauli distinct or almost distinct. Propodeum always reticulated. Sternauli crenulated. Legs of normal form.  $Cuqu_1$  shorter than, or as long as,  $r_2$ . Radial vein ( $r_3$ ) generally straight, almost reaching apex of wing. Margin of stigma always emerged from margin of wing. Meeting of  $cuqu_1$ ,  $cu_1$ ,  $cu_2$ , and  $n. rec.$ , together with  $cuqu_2$ , indistinct.

First 3 tergites of abdomen always with some sculpture: 1st tergite reticulated, 2–3rd tergites punctated. Rest of abdomen smooth and shiny. Ovipositor hardly exerted.

General colour of body: head and thorax black; palpi, tegulae, legs, and abdomen yellow.

General length of body: 2.8–3.8 mm, wingspread 6–8 mm.

Type-species: *Trachyusa aurora* (HAL., 1838).

### Key to the species of *Trachyusa* (♀♀ and ♂♂)

- 1 (2) Head (fig. 2) transverse (1 : 0.52), antenna almost as long as body. Notauli (fig. 2), along its entire course, deep but not crenulated. 1st tergite parallel-sided, 2nd tergite densely and somewhat roughly punctuated, 3rd tergite almost entire and with fine scattered punctures (fig. 3). Veins  $r_1$  and  $cuqu_1$  of equal length. Head and thorax black, legs and abdomen yellow. Mandible testaceous, prothorax yellow with indistinct brown spots. Length 2.8 mm. Only female known. — Range: Transsylvania: **szepligetii** n. sp.
- 2 (1) Head always cubic. Notauli hardly distinct. 1st tergite posteriorly with diverging sides.
- 3 (4) Body stout (fig. 8). Head conspicuously cubic (1 : 0.72). Antenna shorter than body (0.75 : 1), with 27–30 joints. Legs thickened, especially 3rd femur. Vein  $r_1$  springing from posterior third of stigma (fig. 8). Lateral margin of 1st tergite arched (fig. 9). Body yellow; head, scutellum, propodeum, mesopleura, mesosternum, metasternum, 1st tergite, and end of abdomen black. Length 3–3.8 mm. — Range: Hungary: **bucephala** n. sp.
- 4 (3) Body slender (fig. 4). Head not conspicuously cubic (1 : 0.63). Antenna longer than body (1 : 0.9), 29–32 jointed. Legs slender. Vein  $r_1$  arising near middle of stigma (fig. 5, 6). Lateral margin of 1st tergite straight (fig. 1). Body testaceous. Head black, propodeum and end of abdomen dark. Length 2.8–3.2 mm. — Range: West and Central Europe: **aurora** (HAL., 1838)

### *Trachyusa aurora* (HAL.)

(Figs. 1, 4, 5, 6, 7, 14)

*Alysia aurora* HALIDAY, Ent. Mag., 1838, Vol. V, p. 217–218, ♀ ♂.

*Trachyusa nigriceps* RUTHE, Stett. Ent. Ztg., 1854, p. 352.

*Cosmiocarpa aurora* FÖRSTER, Vehr. Naturh. Ver. Preuss. Rheinl. Westph., 1862, 19, p. 264.

*Trachyusa aurora*: 1866, TASCHENBERG, Hym. Deutschl., 1866, p. 90.

*Trachyusa aurora*: 1894, MARSHALL, Trans. Ent. Soc. London, p. 504.

*Trachyusa aurora*: 1904, SZÉPLIGETI, Braconidae (in WYTSMANN: Genera Insectorum, Fasc. 22), p. 204.

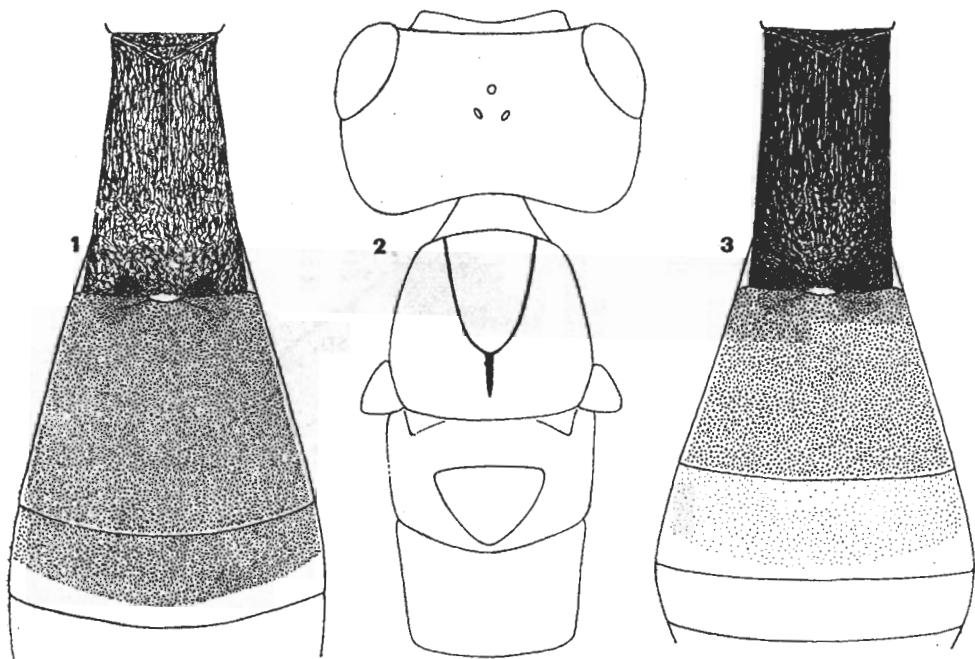
*Trachyusa aurora*: FAHRINGER, Opuscula braconologica: Alysiinae (MS)

♀: Head (fig. 4) somewhat cubic (1 : 0.63), wider than thorax (1 : 0.75), glabrous and polished. Face with dense piles, otherwise head with scattered and short hairs. Eyes almost round, without hairs. Central tooth of mandible with a sub-tooth, upper tooth small (fig. 7). Antenna longer than body

(1 : 0.9), 29–32 jointed. Proportion of first 4 joints of flagellum as 8 : 7 : 5.5 : 4.5 (fig. 14).

Thorax (fig. 4) slender, ratio of its length and width as 2 : 0.75, smooth and shiny. Crenulated border between pro- and mesonotum narrow. Notauli finely indicated. Entire propodeum reticulated. Dorsal side of thorax and propodeum piled, other surface of thorax at most with short and dispersed hairs. Legs slender, of normal form, with pubescence (coxae also hairy).

Wings hyaline. Fore wing as long as body. Stigma elongate, triangular,  $r_1$  springing posteriorly (almost medially) from stigma;  $r_2$  short, conspicuously shorter than  $cu_1$  (not as long as posterior third part of stigma). Border of stigma towards  $Cu_1$  indistinct (fig. 5).



Figs. 1. *T. aurora* (HAL.), ♀ ♂ 1–3 tergites, — Fig. 2–3. *T. szepligetii* sp. n., ♀. 2: head and thorax, 3: 1–4 tergites

Abdomen also slender, proportion of length of abdomen and thorax as 2 : 1.6. 1st tergite elongate (ratio of length and hind width as 1 : 0.45), posteriorly somewhat diverging. Entire 1st tergite reticulated, 2nd and twothird surface of 3rd tergite with very dense punctation (fig. 1); otherwise abdomen smooth and polished. Ovipositor very short but visible.

Colour of body: head blackish, scape, pedicel, twothirds of 1st joint of flagellum, mandible, and palpi yellow. Flagellum from 2nd joint dark brown. Thorax and legs testaceous. Metapleura and propodeum dark brown. Venation of wings yellowish brown, stigma yellow (apically fumous). Abdomen yellow, central brown spot of 1st tergite of variable size. Last 2–3 segments blackish. Legs yellow, claws dark.

Length 2.8–3.2 mm, wingspread 6.2–7.5 mm.

♂: Deviation from female: Antenna of 30–33 joints, stigma emerging from margin of wing (fig. 6).

Host unknown.

Range: West and Central Europe (Ireland, England, Holland, Sweden, Germany, Poland, Italy, Hungary, Roumania). New to the fauna of Roumania. — Localities in the Carpathian Basin (Hungary and Roumania): II/1: Hűvösvölgy, Budapest, in Quercetis, 8 June 1918, 1 ♂, 18 June 1920, 1 ♀, 27 June 1927, 1 ♀ and 2 ♂, July 1929, 1 ♂, leg.: BIRÓ. Nagyvárad (= Oradea), 9 June 1912, 1 ♂, leg.: BIRÓ. Szár, 5 July 1960, 1 ♂, leg.: BAJÁRI. — III/5: Sebeshely (= Şebes), 13 July 1914, 1 ♀, leg.: BIRÓ.

*Trachyusa aurora* ab. *bicolor* n. ab. (= var. 2, MARSH.)

Deviation from nominate form:

♀♂: Head and thorax black or brownish-black. Stigma yellowish brown. Yellow surface of abdomen fumous. Length 2.9–3 mm.

Localities in the Carpathian Basin: II/1: Irhásárok, Budapest, 11 June 1957, 1 ♀, leg.: Á. Soós. Visegrád, 12 June 1926, 1 ♀ and 1 ♂. — VI/1: Pécsbánya, 7 June 1955, 1 ♂, leg.: L. MÓCZÁR

Remark: I named the new aberration after FAHRINGER (MS).

***Trachyusa bucephala* n. sp.**

(Figs. 8, 9, 10, 11, 12, 16)

♀: Head (fig. 8) strongly cubic („bucephala”), ratio of its width and length as 1 : 0.72, wider than thorax (1 : 0.68), glabrous and polished. Face hairy, vertex with dispersed hairs. Eyes somewhat elliptic, without hairs. Mandible (compared with *Tr. aurora* HAL.) strong, upper edge of central tooth with a protuberance (fig. 16). Antenna shorter than body (0.75 : 1), somewhat longer than head and thorax, with 27–30 joints. Proportion of first 4 joints of flagellum as 8 : 9 : 7 : 6, 2nd joint of flagellum somewhat longer than 1st (in contrast with male) (fig. 12). First 13 joints of flagellum gradually shortening, from 14th joint cubic in from.

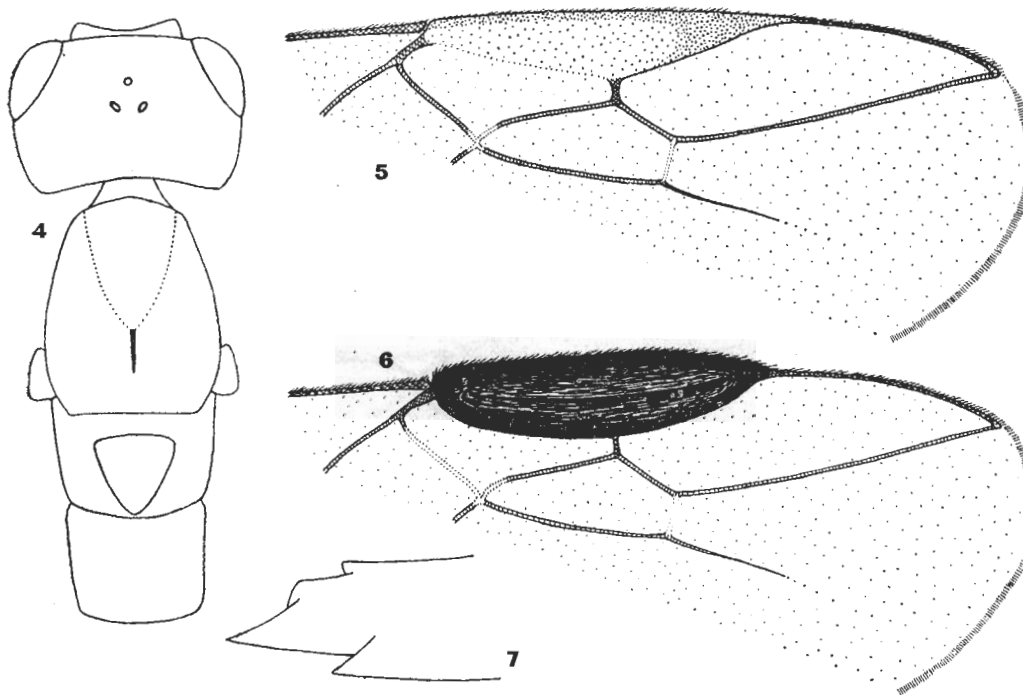
Thorax (fig. 8) somewhat stout, ratio of its length and width as 2 : 0.85, smooth and shiny except scrobiculated propodeum. Crenulated border between pro- and mesonotum wide. Dorsal side of thorax and propodeum with dense, other parts of thorax with scattered hairs. Notauli anteriorly marked, posteriorly only in traces, converging and arched. Hind margin of mesonotum with a triangular lateral lobe. Prescutellar furrow relatively deep, finely crenulated. Legs of normal form with pubescence (coxae also hairy). First 3rd femur a little thick (as on *Tr. szepligetii* sp. n.).

Wings (fig. 8) hyaline. Forewing shorter than body (0.8 : 1). Stigma elongate,  $r_1$  springing from posterior third of stigma,  $r_2$  as long as  $cuqu_1$  (and posterior third of stigma),  $r_3$  straight.

Abdomen (fig. 8) also stout, ratio of length of abdomen and thorax as 2 : 1.8, widest at hind margin of 3rd segment. Lateral margin of 1st tergite arched. Length and hind width of 1st tergite as 1 : 0.58. Entire 1st tergite

reticulated. 2nd tergite very densely punctated. Almost entire 3rd tergite with a fine and dense punctation (fig. 9), otherwise abdomen smooth and shiny. Ovipositor short, generally as long as last two segments.

Colour of body: head black; mandible reddish-yellow, apex of three teeth black; scape yellowish-brown; pedicel and first 3 joints of flagellum yellow, from joints 4-6(-8) darkening, rest of flagellum black. Prothorax, mesonotum, tegulae, upper part of mesopleura testaceous. Scutellum, meta-thorax, mesopleura, sternum, and propodeum black. Legs testaceous, pos-



Figs. 4-7. *T. aurora* (HAL.). 4: head and thorax, ♀♂ 5: part of right fore wing with stigma, ♀, 6: part of right fore wing with stigma, ♂, 7: left mandible, ♀♂

terior two-thirds of 3rd femur, end of tibia, and entire tarsus, brownish. Venation of wings and stigma yellowish-brown. Abdomen testaceous, 1st tergite and 6th segment black, ovipositor black.

Length 3.2-3.8 mm, wingspread 7-7.5 mm.

♂: Deviation from female: Body somewhat slender, ratio of first 4 joints of flagellum as 10 : 10 : 7.5 : 6, thus 1st and 2nd joints of equal length (in contrast with female). Stigma emerging from margin of wing (fig. 10). Length 3-3.7 mm.

Host unknown.

Localities in the Carpathian Basin (Hungary): II/1: Sashegy, Budapest, 28-29 May 1917, 4 ♀ (1 ♀ holotype, 3 ♀ paratypes) and 2 ♂ (paratypes), 10 June 1917, 1 ♀ and 1 ♂ (paratypes), 27 May 1918, 2 ♂ (paratypes), leg.: BIRÓ. Hárshegy, Budapest, 2 June 1901, 2 ♀ (paratype) and 5 ♂

(1 ♂ allotype, 4 ♂ paratypes), leg.: SZÉPLIGETI. Svábhegy, Budapest, 12 June 1897, 2 ♂ (paratypes), leg.: SZÉPLIGETI. Zugliget, Budapest, 7 June 1899, 2 ♀ and 12 ♂ (paratypes), leg.: SZÉPLIGETI. Budapest 2 ♂ (paratypes), leg.: SZÉPLIGETI. Révfülöp, 19 August 1925, 1 ♂ (paratype), leg.: SZILÁRDY. — II/2: Fót, 19 Sept. 1960, 2 ♂ (paratypes), leg.: MIHÁLYI. (Holotype, allotype, and paratypes in the Hungarian Natural History Museum, Budapest).

The new species is nearest to *Tr. aurora* HAL., but differs from it as follows: 1. Body stout (fig. 8), 2. antenna shorter than body (0.75:1), 3. head conspicuously cubic, 4. form and reticulation of 1st tergite (fig. 9), 5. colour of body.

***Trachyusa szepligetii* n. sp.**

(Figs. 2, 3, 13, 15)

♀: Head (fig. 2) transverse, ratio of width and length as 1:0.52, wider than thorax (1:0.7), glabrous and shiny. Face, especially along inner margin of eyes, finely punctated. Eyes only slightly protruding (as compared with the two other species), without hairs. Mandible (fig. 15) of normal form,

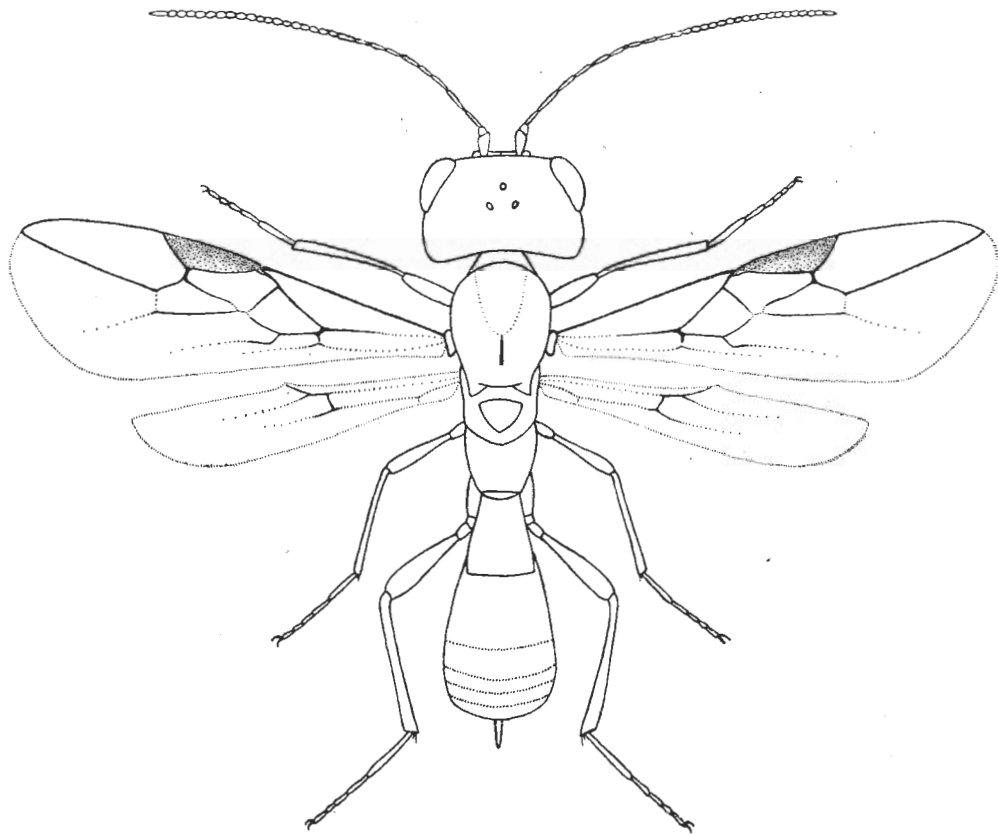


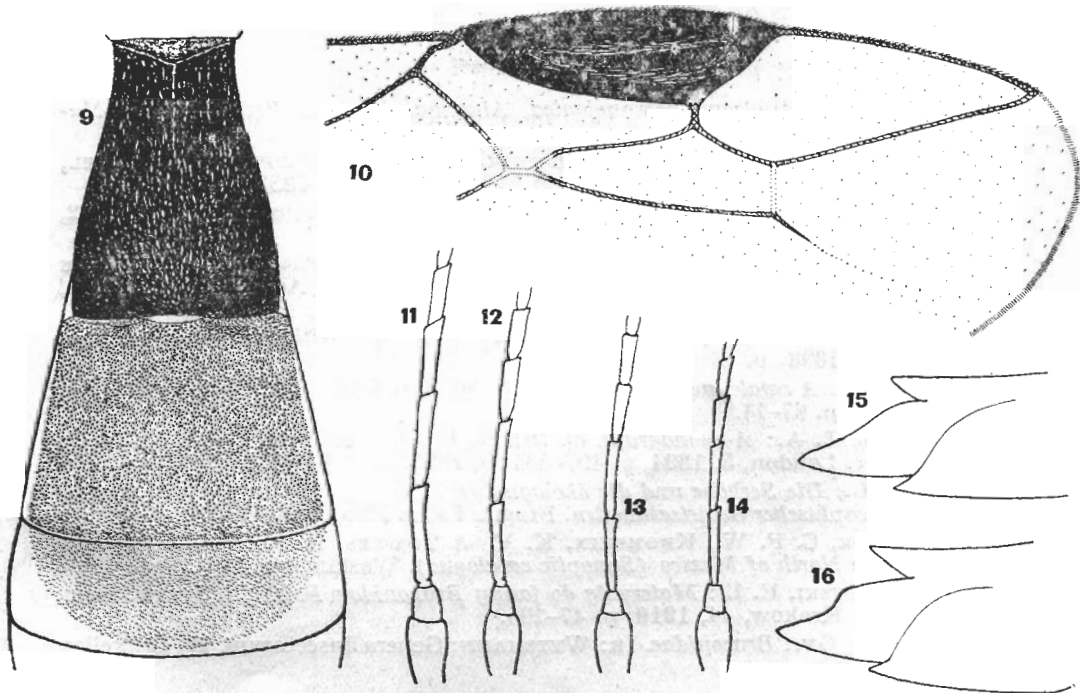
Fig. 8. *T. bucephala* sp. n., ♀

its central tooth pointed. Antenna almost as long as body (1:0.9), of 30 joints, with pubescence. Proportion of first 4 joints of flagellum as 8:8:6.5:5.5 (fig. 13), thus first two joints of flagellum of equal length, subsequent 10-12 joints gradually shortening, remaining joints of equal length but always somewhat longer than wide, last joint spiky.

Thorax (fig. 2) somewhat stout (as compared with *Tr. aurora* HAL.), ratio of its length and width as 2:0.9, smooth and polished. Mesonotum, scutellum, propodeum, and upper corner of mesopleura with relatively long hairs. Crenulated border between pro- and mesonotum wide. Notauli (fig. 2) well defined, deep, not crenulated. Praescutellar furrow of normal width, crenulated. Propodeum punctato-reticulated. Legs of normal form, rather hairy, 3rd femur slightly thickened (as in *Tr. bucephala* n. sp.).

Wings hyaline. Forewing as long as body. Stigma elongate,  $r_1$  arising from posterior third of stigma,  $r_2$  as long as  $cu_1$ ,  $r_3$  straight.

Abdomen as long as thorax, widest at hind margin of third tergite (somewhat wider than thorax at tegulae). Tergites with scattered hairs. 1st tergite reticulated, with parallel sides, 2nd tergite densely and somewhat roughly, 3rd tergite almost entirely, covered with fine and scattered punctures (fig. 3) Otherwise abdomen smooth and shiny. Ovipositor short, as long as last 3 segments.



Figs. 9-12. *T. bucephala* sp. n. 9: 1-3 tergites, ♀♂, 10: part of right fore wing with stigma, 11: first 4 joints of flagellum with scape and pedicel, ♂ (10:10:7.5:6), 12: first 4 joints of flagellum with scape and pedicel, ♀ (8:9:7:6). — Fig. 13. *T. szepligetii* sp. n., ♀, first 4 joints of flagellum with scape and pedicel (8:8:6.5:5.5). — Fig. 14. *T. aurora* (HAL.), ♀, first 4 joints of flagellum with scape and pedicel (8:7:5.5:4.5). — Fig. 15. *T. szepligetii* sp. n., ♀, left mandible, — Fig. 16. *T. bucephala* sp. n., ♀, left mandible

Colour of body: head and thorax brownish-black. Indistinct spot on clypeus and mandible testaceous. Almost entire dentation of mandible dark. Palpi yellow. Scape, pedicel, and first joints of flagellum yellow, subsequent 5 joints gradually darkening, rest of flagellum dark brown. Prothorax yellow with indistinct brown spots. Tegulae and legs yellow, claws of fifth joint of tarsi dark. Venation of wings and stigma yellowish-brown. Abdomen yellow, 1st tergite brownish-black, ovipositor black.

Length 2.8 mm, wingspread 5.9 mm.

Male and host unknown.

Locality in the Carpathian Basin (Transsylvania): III/4: Tasnád (= Taşnad), 2 July 1912, 1 ♀ (holotype, in the Hungarian Natural History Museum, Budapest), leg.: BIRÓ.

The new species is nearest to *Tr. aurora* (HAL.), but differs from it as follows: 1. Head transverse (fig. 2), 2. notauli (fig. 2) well indicated, deep, 3. 1st tergite parallel-sided (fig. 3), 4. veins  $r_1$  and  $cuqu_1$  of equal length, 5. colour of body.

I dedicate the new species to the noted Hungarian Braconidologist, GY. SZÉPLIGETI (1855–1915), on the fiftieth anniversary of his demise.

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