

**SPECIES OF *COLOTRECHNUS* THOMSON, 1878
(HYMENOPTERA: PTEROMALIDAE, COLOTREHNINAE)
FROM TURKEY, WITH DESCRIPTION OF NEW SPECIES**

Mikdat Doğanlar*

* Honorary Professor, Biological Control Research Institute / Adana, TURKEY. E-mail: mikdoganlar@yahoo.com.tr

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ABSTRACT: The species of *Colotrechnus* Thomson, 1878 (Hymenoptera: Pteromalidae, Colotrehninae) from Turkey were studied. From Turkey 10 species of *Colotrechnus*, 8 of them as new species, *C. karatasensis* n. sp., *C. bekirkalkani* n. sp., *C. kemaliyenensis* n. sp., *C. mustafaoezeri* n. sp., *C. zduzgunesae* n. sp., *C. hasangirayi* n. sp., *C. birecikensis* n. sp., *C. akifkansui* n. sp. and 2 known species, *C. subcoeruleus*, Thomson 1878, *C. viridis* (Masi, 1921), were described from several parts of Turkey. An identification key was provided for the world species.

KEY WORDS: *Colotrechnus* spp., Hymenoptera, Pteromalidae, Turkey

The subfamily Colotrehninae was established in the Pteromalidae, and *Colotrechnus* and its type species *C. subcoeruleus* was described by Thomson (1876). Masi (1921) described *Zanonia* and its type species, *Z. viridis*. Delucchi, (1956) discussed the status of *Colotrechnus* compared with characters of *Zanonia* (Masi), and synonymized *Zanonia* under *Colotrechnus*, gave the diagnostic characters of the genus and provided an identification key for two known species, *C. subcoeruleus* Thomson and *C. viridis* (Masi). It was placed as a tribe under Pteromalidae (Bouček, 1958) and later upgraded to a subfamily (Peck et al., 1964). The subfamily is now divided into five tribes by Bouček (1988) such as: Hetreulophini, Amerostenini, Divnini, Colotrehnini and Uzkini. This whole group can be simply characterized by the presence of large axillae separated from the scutellum by (mostly) out-curving grooves or lines visible dorsally, and by the absence of an occipital carina (Bouček, 1988). Up to date, 19 valid genera have been described in this subfamily (Noyes, 2016). They are widely distributed in the world (Noyes, 2016). Among them, *Colotrechnus* is the best known genus of Colotrehninae. Until now, 6 species have been described in this genus, *C. ignotus* from nearctic, and *C. subcoeruleus* from the Palearctic Region and *C. viridis* from Euroasian region and Africa were recorded. Two species, *C. agromyzae* and *C. melghatlicus*, were reported from Oriental Region, and *C. notaularis* from the Australasian Region. From Turkey 2 species, *C. subcoeruleus* and *C. viridis*, were recorded (Doğanlar, 1985; Öncüer, 1991), but the first one was described as new species by this work.

The species of *Colotrechnus* were reported as parasitoids of Diptera (Tephritidae, Agromyzidae) on associated plant (Asteraceae, Fabaceae, Myrtaceae) (Noyes, 2016; Bouček, 1988; Burks, 1979). Apparently these wasps are potential enemies of some species of Diptera. Li et al. (2014) recorded *Colotrechnus* from China, described *C. viridis* from the specimens collected from the Junggar Basin in north of Xinjiang.

In this work morphological characters of the *Colotrechnus* species from Turkey were studied and the new species was described and compared with the similar species and an identification key was provided for the World species.

MATERIAL AND METHODS

This study is based upon examination and identification of the specimens collected from several parts of Turkey. The examined specimens and types of the new species were deposited in Insect Museum of Biological Control Station, Yüreğir, Adana, Turkey (IMBC). Specimens were collected by sweeping net and putting the whole contents of the swept materials directly in 96 % ethanol. After sorting the material, individuals were mounted on cards, and, whole body or antenna and/or forewings of some species were slide mounted in Canada balsam for further morphological studies.

The species were identified by following the keys of Li et al. (2014) and Graham (1969). Photographs of diagnostic characters of the genera were taken by using of Leica DM 500 microscopes with a digital Leica ICC 50 camera attached to it.

Terminology and abbreviations

Morphological terminology follows that of Bouček (1988), Gibson et al. (1997) and Li et al. (2014). Abbreviations used in the key and descriptions are: F1-7 = funicular segments; C1-C3= Club segments; a= distance between tip of post marginal vein and base of costal cell; b= distance between tip of post marginal vein and tip of forewing; MSt₁, MSt₂= basal segments of metasoma.

RESULTS AND DISCUSSION

Colotrechnus Thomson, 1878

Colotrechnus Thomson, 1878: 46. Type-species: *C. subcoeruleus* Thomson, by monotypy; Schmiedeknecht, 1909: 289; Delucchi, 1956: 233; Peck et al., 1964: 41; Graham, 1969: 850; Bouček, 1993: 1304; Bouček, 1988: 281.

Zanonia Masi, 1921: 184. Type-species: *Z. viridis* Masi, by monotypy. Synonymized with *Colotrechnus* Thomson by Delucchi (1956).

Diagnosis. Body long and slightly slender, metallic dark green. Head and mesosoma finely reticulate, head without occipital carina. Face with antennal scrobes deep and broad or very shallow; lower face with a slight depression below toruli; clypeus flat and small, (delimited by distinct Groove in *C. mustafaeozeri* n. sp., and anterior margin of clypeus slightly emarginated medially, with a distinct impression above the emargination in *C. karatasensis* n. sp.). Antennae inserted slightly below centre of face, above lower ocular line (except in *C. karatasensis* n. sp. inserted at centre of face); antennal formula 11263 (11353 in males and in some small females of Australian spp. (Bouček, 1988), and in females of *Colotrechnus bekirkalkani* n. sp. from Turkey); flagellum with dense hairs. Pronotum rounded, with distinct neck and collar, anterior margin of collar not margined, posterior margin finely reticulate, with short pale hairs; notauli very shallow and incomplete, sometimes complete in *Colotrechnus notaularis* Bouček (Bouček, 1988). Scutellum dorsally with conspicuous sublateral grooves. In females, propodeum very short, almost reduced to a point, median area smooth and bare, forming an acute triangle area, submedian area with white dense hairs; plica absent; propodeal spiracles large and subcircular, touching anterior propodeal margin. In males propodeum much longer and median carina complete. Fore wing with 3 usually distinct folds, sometimes marked by

conspicuous hairlines, radiating from the short clavate stigma (Bouček, 1988); costal cell bare on upper side, with several setal patterns on lower side; speculum broad, open; basal cell open without any hairs. Hind tibia with 2 spurs. Metasoma sessile and lanceolate, much longer or slightly longer than mesosoma; basal tergites often slightly produced in middle; ovipositor either produced or not produced.

Biology. Bouček (1988) stated that one species was reared from pods of *Glaucinia flava* (Papaverales: Papaveraceae) in France, and another species, *C. agromyzae* Subba Rao, was allegedly reared in Indonesia from *Agromyza* sp. (Diptera: Agromyzidae). A North American species has been found to emerge from the heads of some Asteraceae (Dicotyledones: Asterales) (Noyes, 2016).

Distribution. All regions in the world.

Key to World species of *Colotrechnus* Thomson

- 1- Notauli complete; head in facial view short, transverse-oval, lower face distinctly reticulate; 6 funicular segments slightly transverse. Head in frontal view distinctly wider than height (36:29.5), and 1.8x as wide as length, POL 2.5 OOL, eye 1.4x as long as width; 20.5:14.5, malar space 0.34x eye height, scape 10, pedicel plus flagellum 36, mesosoma in dorsal view slightly narrower than head width (0.92x), 1.25x as long as width; mesoscutum 1.27x as wide as length; scutellum length 1.48x minimum distance between axillar grooves, with 2 pairs of bristles laterally. Metasoma 1.84x as long as mesosoma, and 3.68x as long as width; last tergite (epipygium) about twice as long as broad..... *C. notaularis* Bouček
- Notauli incomplete, only distinct anteriorly.....2
- 2-Anterior margin of clypeus slightly emarginated medially, with a distinct impression above the emargination (Fig. 1c); metasoma 1.54x as long as mesosoma, the latter 0.68x as long as width (Figs. 1a,b); Antenna (Fig. 1g) with combined length of flagellum 2.54x as long as length of club, and 3.33x as long as scape; club 1.9x as long as wide; C1 1.15x as long as C2; forewing (Fig. 2a) 2.42x as long as wide; a/b 1.73x; costal cell (Fig. 2b) 8.6x as long as wide, with one complete row along margin, 2 at base, 3 rows setae in apical half. Head (Fig. 1c) in frontal view slightly wider than high (40:36), and 2.2x as wide as length, POL 2.8 OOL; eye about 2.2x as long as width; malar space about 0.36x eye height Mesosoma (Fig. 1d) in profile almost flat dorsally, length about 2.0x height, in dorsal view slightly broader than head width (1.08x), 1.25x as long as width; mesoscutum 30:44, scutellum (Fig. 1e) 1.6x as long as minimum distance between axillary grooves, with 3 pairs of bristles laterally; Propodeum as seen in Fig. 1f; metasoma (Figs. 1a,b) 1.54x as long as wide; last tergite (epipygium) about 1.55x as long as wide.....*C. karatasensis* n. sp.
- Clypeal margin entire, other characters variable.....3
- 3-Female with antennal formula 11353 (Fig. 3c); Head (Fig. 3b) in frontal view slightly wider than high (40:34) and 1.73x as wide as length; POL 2.2 OOL; eye in frontal view about 2.7x as long as width. Malar space about 0.36x eye height; scape short, 0.45x eye height, not reaching lower edge of anterior ocellus, about 4.0x as long as width; antenna (Fig. 3c) with pedicel in lateral view about 1.3x as long as width; F1–F3 distinctly transverse, equal in length and width, 2.14x as wide as long; F4 twice as wide as long; F5 slightly wider than F4, 2.2x as wide as long; club 1.9x as long as wide; C1 0.92x as long as C2; club as long as pedicel plus anelli and F1+F2 together. Combined length of flagellum 2.4x as long as club, and 2.3x as long as scape. Forewing (Fig. 4a) 1.75x as long as wide; a/b 2.15x; costal cell 8.7x as long as wide, with one complete row along margin, 2 at base, 3 rows setae in apical half; post marginal vein longer than stigmal vein. Mesosoma (Figs. 3a,d) in profile slightly convex dorsally, length about 1.34x wide in dorsal view, slightly broader than head width (1.1x); mesoscutum, about 1.9x as wide as long; scutellum (Figs. 3a,d) 1.3x as long as space between sublateral grooves, with 3 pairs of bristles laterally; metasoma (Figs. 3a,e) 1.32x as long as mesosoma, and 2.1x as long as width; last tergite (epipygium) about 1.4x as long as broad.....*C. bekirkalkani* n. sp.
- Female antenna with 2 anelli; other characters variable.....4

- 4- Antenna (Fig. 5a) with all funicular segments longer than wide, mesosoma with dense long fine setae.....5
 -Antenna with all funicular segments transvers, at most quadrate; mesosoma with sparse long or short fine setae.....9
- 5- Female. Antennal formula 11263 (Fig. 5e).....6
 - Male. Antennal formula 11353.....8
- 6- Forewing (Fig. 4b) with distinct infumation below marginal vein; 2.06x as long as wide; a/b 1.57x; marginal vein 2.38x as long as post marginal vein; post marginal vein 1.6x as long as stigmal vein; costal cell 8.5x as long as wide, with 3 rows setae. Antenna (Fig. 5e) with scape long, 0.7x eye height, not reaching lower edge of anterior ocellus, about 7.0x as long as width; POL 2.6 OOL; pedicel in lateral view about 1.9x as long as width; funicular segments longer than wide, almost in same width, F1 (Fig. 5f) with 3 sensillae in a row from base to tip and 3 sensillae in apical part, F2 with 5 linear sensillae almost in 3 rows, other segments with 2 rows sensillae; F1 2.0x, F2 1.5x, F3 1.33x, F4-F5 1.25x, F6 1.15x as long as wide; club (Fig. 5g) 2.5x as long as wide; C1 1.14x as long as C2; club as long as pedicel plus anelli and 1/2 F1 together; combined length of flagellum 4.1x as long as length of club, and 2.1x as long as scape; Mesosoma (Fig. 5d) about 1.43x as long as wide in dorsal view, slightly narrower than head width (0.93x); mesoscutum with fine about 1.55x as wide as length; scutellum 1.2x as long as space between sublateral groves, with at least 5 rows of setae; hind femur 1.76x as long as hind coxa. Metasoma (Figs. 5a,b) about 3.2x as long as wide, about 2.0x as long as mesosoma length; last tergite (epipygium) about 1.4x as long as broad; ovipositor 0.4x as long as last tergite.....*C. subcoeruleus* Thomson
- Fore wing without any infumation; metasoma at most 1.86x as long as mesosoma.....7
- 7- Ovipositor not produced and 0.64x as long as last tergite; metasoma 1.77x as long as mesosoma; Pronotum much shorter than half length of mesoscutum in dorsal view; antennal insertion well lower than centre of face; scape (Fig. 5 of Subba Rao, 1981) 2.55x as long as F1. Forewing (Figs. 2, 3 of Subba Rao, 1981) 2.39x as long as broad; MV 2.75x as long as PMV; PMV 1.46x as long as STV; Head (Fig. 1 of Subba Rao, 1981) width in anterior view 1.56x distance between front ocellus and lower clypeal margin.....*C. agromyzae* Subba Rao
- Body (Fig. 1 of Narendran & Girish Kumar, 2009) with ovipositor produced; metasoma 1.86x as long as mesosoma; Pronotum equal to half length of mesoscutum in dorsal view; antennal insertion almost near centre of face; scape 2.35x as long as F1; Forewing 2.1x as long as broad; MV 3x as long as PMV; PMV 2.1x as long as STV; Ovipositor sheath not produced. Head width in anterior view 1.36x distance between front ocellus and lower clypeal margin. Forewing 2.39x as long as wide; Hind femur 1.5x as long as hind coxa.....*C. melghatlicus* Narendran & Girish Kumar
- 8-Antenna (Fig. 5h) with combined length of flagellum 4.25x as long as length of club and 5.2x as long as scape; F1 and F2 (Fig. 5i) with 3 linear sensillae in a row; club (Fig. 5j) 3.9-4.3x as long as wide; C1 0.72x as long as C2+C3.....*C. subcoeruleus* Thomson
- Antenna (Fig. 6d) with combined length of flagellum 4.7x as long as length of club, and 5.45x as long as scape; F1 and F2 with one linear sensillae; club 3.3-3.5x as long as wide; C1 0.93x as long as C2+C3; Head in frontal view 1.42x as wide as high, and twice as wide as length. Eye in frontal view about 1.5x as long as width. Malar space about 0.3x eye height, POL 2.3x OOL. Forewing (Fig. 4c) 1.9x as long as wide; a/b 1.9x; costal cell 6.25x as long as wide, with one complete row, and a half row at setae. Mesosoma (Figs. 6a,b) in profile slightly convex dorsally, about 1.64x as long as wide in dorsal view, as wide as head; mesoscutum about 1.34x as wide as long; scutellum 1.3x as long as space between sublateral groves, with at least 6 rows of setae; Metasoma (Fig. 6a) short, about 1.85x as long as wide, about 0.86x as long as mesosoma.....*C. kemaliyenensis* n. sp.
- 9- Ovipositor produced (7a,c; 8a,b; 9a).....10
 - Ovipositor not produced (10a; 11a; 12a).....13
- 10- Mesosoma (7c,e) bicoloured; pronotum, scutellum and propodeum pale yellow; female club with distinct spicula; clypeus (7d) delimited by distinct groove and with apical margin entire; antenna (7d) having club with distinct spicula, 1.9x as long as wide; C1 1.31x as long as C2; combined length of flagellum 2.7x as long as length of club, 2.7x as long as scape; forewing (4d) 2.42x as long as wide; a/b 2.8x; costal cell 8.6x as long as

- wide, with one complete row, and a half row at setae. Head (7d) in frontal view slightly wider than high (38:35) and 1.9x as wide as length; POL 3x OOL; Eye in frontal view about 2.2x as long as width. Malar space about 0.31x eye height, mesosoma 1.44x as long as width in dorsal view, distinctly narrower than head width (0.66x); mesoscutum about 1.5x as wide as long; scutellum 1.18x as long as minimum distance between axillary grooves, with 4 pairs of setae laterally; metasoma (7a-c) 4.35x as long as width, and 2.5x as long as mesosoma. last tergite (epipygium) about 1.33x as long as broad; ovipositor almost 0.5x as long as the last tergite.....*C. mustafaoezeri* n. sp.
- Body uniformly coloured, black with bluish reflections; sides of clypeus not delimited by carina; female club without spicula.....11
- 11- Antenna (Fig. of Burks, 1958) with combined length of flagellum 2.7x as long as club, and 2.1x as long as scape; Forewing 2.33x as long as wide, and a/b 2.7x; costal cell 6.0x as long as wide; mesoscutum with sparse, short and appressed pubescence; POL 2x OOL; club 1.8x as long as wide; C1 1.54x as long as C2; costal cell with upper side bare, lower side 1 comp, apical half 2nd row long bristles; stigmal vein not petiolate, stigmal vein almost as long as wide, stigma as long as wide; metasoma twice as long as mesosoma.....*C. ignotus* Burks
- Antenna (Fig. 8e) with combined length of flagellum at least 3.2x as long as club; costal cell at least 7.9x as long as wide; mesoscutum with sparse, long and appressed pubescence; forewing at most 2.21x as long as wide; a/b 2.0x.....12
- 12- Antenna (Fig. 8e) with combined length of flagellum 3.5-3.7x as long as club, and 2.64x as long as scape; metasoma 2.34x as long as mesosoma; costal cell 7.9x as long as wide; Club 1.8x as long as wide, C1 1.67x as long as C2; Forewing (Fig. 4e) 2.21x as long as wide; costal cell with upper side bare, lower side medially bare, at base 3-4 rows, in apical 2 rows of setae; stigma petiolate, stigmal vein more than twice as long as wide, stigma slightly wider than long; Head (Fig. 8c,d) in frontal view 1.25x as wide as high, and 2.3x as wide as length; POL 2.67x OOL; eye in frontal view about 1.7x as long as width. Malar space about 0.35x eye height; mesosoma (Fig. 8f) 1.4x as long as wide in dorsal view, slightly wider than head; mesoscutum about 1.52x as wide as long; scutellum (Fig. 8g) 1.4x as long as space minimum distance between axillary grooves, with 3 pairs of setae laterally, 4 setae basally; metasoma (Fig. 8a,b) about 2.48x as long as wide, about 1.82x as long as mesosoma length; last tergite 1.5x as long as wide; ovipositor sheath 0.47x as long as last tergite.....*C. zduzgunesae* n. sp.
- Antenna (Fig. 9e) with combined length of flagellum 3.2x as long as club and 2.1x as long as scape; metasoma 1.93x as long as mesosoma; costal cell 8.6x as long as wide Club 1.56x as long as wide, C1 1.5x as long as C2; forewing (Fig. 4f) 2.15x as long as wide; a/b 2.0x; costal cell with upper side bare, lower side with 1 complete row, at base 2 rows, in apical 3 rows of setae; stigmal vein not petiolate, wider than long, stigma longer than wide; head (Fig. 9c) in frontal view 1.13x as wide as high, and 2.25x as wide as length POL 3.0x OOL; eye in frontal view about 3.0x as long as width; malar space about 0.34x eye height; mesosoma (Fig. 9a) about 1.32x as long as wide in dorsal view, slightly wider than head; mesoscutum (Fig. 9f) about 1.37x as wide as long; scutellum 1.33x as long as minimum distance between axillary grooves, with 3 pairs of setae laterally, 4 pairs in 2 rows medially; metasoma (Fig. 9a) about 2.6x as long as wide, about 1.93x as long as mesosoma length; last tergite (epipygium) about 0.8x as long as broad; ovipositor sheath 1.64x as long as last tergite.....*C. hasangirayi* n. sp.
- 13- Antenna (Fig. 10e) with F1 almost quadrate; combined length of flagellum about 3.1x (3.7) as long as length of club, and 2.9-3.1 x as long as scape; F1 0.75-0.93x as wide as long, with 5 linear sensillae; F2-F4 almost same length and width, 1.3-1.5x as wide as long; F5-F6 slightly widening, F5 1.5x, F6 1.67x as wide as long; F6 1.1-1.43x wider than F2; Club 1.74x (2.25) as long as wide; C1 1.25x as long as C2; Forewing (Fig. 4g) 2.1x as long as wide; a/b 2.0x; costal cell 7x as long as wide, with 2-3 complete rows of setae. Head (Fig. 10c) in frontal view 1.5x as wide as high, and 2.67x as wide as length; POL 2.6x OOL; eye in frontal view about 3.33x as long as width; malar space about 0.31x eye height, mesosoma (Figs. 10a,b) about 1.33x as long as wide in dorsal view, slightly narrower than head; mesoscutum (Fig. 10f) about 1.43x as wide as long; scutellum (Fig. 10g) 1.22x as long as minimum distance between axillary grooves, with 2 pair setae laterally, 1-2 setae basally; metasoma (Figs. 10a,b) about 3.0x as long as wide, about

- 1.52x as long as mesosoma length; last tergite (epipygium) about 1.6x as long as broad; ovipositor sheath 0.15x as long as last tergite.....*C. birecikensis* n. sp.
- Antenna (Fig. 11e; 12d) with F1 distinctly transverse; combined length of flagellum at most 2.7x as long as club.....14
- 14- Antenna (Fig. 11d) with F1 with at least 4 linear sensillae, F2-F6 at least 5-6 linear sensillae; club 1.3-1.5x as long as wide; C1 1.14-1.36x as long as C2; combined length of flagellum 2.1-2.55x as long as club; 3.22-3.7x as long as scape; forewing (Fig. 4h) 2.02-2.55x as long as wide; a/b 1.7-2.5x; costal cell 7.5-8.0x as long as wide, with 1 complete row, at base and apical about 2-3 rows of setae; Head (Fig. 11c) in frontal view 1.16-1.2x as wide as high, and 2.28x as wide as length, POL 2.25x OOL; eye in frontal view about 2.75x as long as width. malar space about 0.4x eye height; mesosoma (Figs. 11a,b) about 1.6x as long as wide in dorsal view, almost as wide as head; mesoscutum (Fig. 11f) about 1.3x as wide as long, with 4-5 rows, sparse, fine, long, pale setae; scutellum (Fig. 11g) 1.2x as long as minimum distance between axillary grooves, scutellum with 3 pair setae laterally, 3 setae basally; metasoma (Figs. 11a,b) about 2.83-3.2x as long as wide, about 1.6x as long as mesosoma length; last tergite (epipygium) about 1.5x as long as broad; ovipositor sheath 0.33x as long as last tergite.....*C. viridis* (Masi, 1921)
- Antenna (Fig. 12d) with F1 with at most 2 linear sensillae, F2-F6 at most 3-4 linear sensillae; club at least 1.74x as long as wide; combined length of flagellum at least 2.6x as long as club; combined length of flagellum about 2.03-2.31x as long as scape, 2.6-2.7 as long as club; F1 1.6-2.1x as wide as long; F2-F6 distinctly transverse, slightly widening towards tip, F2 2.0-2.3x as wide as long; F6 1.2-1.5x wider than F2, 2.2-2.4x as wide as long; club 1.74-1.8x as long as wide; C1 1.4-1.5x as wide as long, 1.25-1.31x as long as C2; forewing (Fig. 4i) 2.1-2.21x as long as wide; a/b 2.0-2.32x; costal cell 8.0-8.33x as long as wide, with 1 complete row, at base and apical 2 rows of setae. Head (Fig. 12c) in frontal view 1.1-1.2x as wide as high, and 2.5x as wide as length; POL 2.75x OOL; eye in frontal view about 2.4-2.8x as long as width; malar space about 0.26x eye height; mesosoma (Fig. 12a,b) about 1.2x as long as wide in dorsal view, almost as wide as head (42:35); mesoscutum (Fig. 12e) about 1.3-1.46x as wide as long, with 4-5 rows, sparse, fine, short, pale setae; scutellum 1.15x as long as minimum distance between axillary grooves, with 3 pair setae laterally; metasoma (Fig. 12a) about 2.6-2.0x as long as wide, about 1.4-1.6x as long as mesosoma length; last tergite (epipygium) (Fig. 12f) about 1.33-1.4x as long as broad; ovipositor sheath 0.3-0.14x as long as last tergite.....*C. akifkansui* n. sp.

***Colotrechnus notaularis* Bouček, 1988**

(Figs. 454, 455 of Bouček, 1988)

Colotrechnus notaularis Bouček, 1988: 281. Holotype female. NSW: on *Angophora costata*, 29.xii.1972, in ANIC. Paratypes: QLD: 1 female, Cootharaba Lake nr. Gympie, 13.xi.1976 (Bouček, in BMNH); 1 female, SA.54 km E of Vokes Hill Junction, at light, 9.x.1976 (Hedrige & Gross; SAM).

Diagnosis: Body (Fig. 455 of Bouček, 1988) with mesosoma notauli complete; head in facial view short, transverse-oval, lower face distinctly reticulate; 6 funicular segments slightly transverse. Head in frontal view distinctly wider than height (36:29.5), and 1.8x as wide as length, POL 2.5 OOL, eye 1.4x as long as width; 20.5:14.5, malar space 0.34x eye height, scape 10, pedicel plus flagellum 36, mesosoma (Fig. 455 of Bouček, 1988) in dorsal view slightly narrower than head width (0.92x), 1.25x as long as width; mesoscutum 1.27x as wide as length; scutellum length 1.48x minimum distance between axillary grooves, with 2 pairs of bristles laterally. Metasoma 1.84x as long as mesosoma, and 3.7x as long as width; last tergite (epipygium) about twice as long as broad.

Distribution: Australia; New South Wales; Queensland; South Australia (Bouček, 1988).

***Colotrechnus karataensis* n. sp.**

(Figs. 1 a-g, 2 a-c)

Etymology. The name is derived from the name of Karataş, Adana from which the types were collected.

Diagnosis. Anterior margin of clypeus slightly emarginated medially, with a distinct impression above the emargination; metasoma 1.54x as long as mesosoma, the latter 0.68x as long as width; combined length of flagellum 2.54x as long as length of club, and 3.33x as long as scape; club 1.9x as long as wide; C1 1.15x as long as C2; forewing 2.42x as long as wide; a/b 1.73x; costal cell 8.6x as long as wide, with one complete row along margin, 2 at base, 3 rows setae in apical half. Head in frontal view slightly wider than high (40:36), and 2.2x as wide as length, POL 2,8 OOL; eye about 2.2x as long as width; malar space about 0.36x eye height. Mesosoma in profile almost flat dorsally, length about 2.0x height, in dorsal view slightly broader than head width (1.08x), 1.25x as long as width; mesoscutum 30:44, scutellum 1.6x as long as minimum distance between axillary grooves, with 3 pairs of bristles laterally; metasoma 1.54x as long as wide; last tergite (epipygium) about 1.55x as long as wide.

Description. Female: Body length. 2.0-2.2 mm.

Colour. Body black with metallic blue reflection, antenna black, scape and pedicel with metallic blue reflection; legs almost same colour with body, except hind tibiae medially brown, tarsi pale-brown. Wings hyaline, with pale venation and setae.

Head in frontal view slightly wider than high (40:36), face smooth with reticulation on malar area; antennal scrobe broad and deep, smooth and bare on the bottom, finely reticulate on both sides, with white densely appressed pubescence; lower face faintly concave, bare; clypeal margin (Fig. 1c) slightly emarginated medially, with a distinct impression above the emargination; eye about 2.2x as long as width; malar space about 0.36x eye height, malar sulcus developed finely, genal carina absent. Antennae (Fig. 1g) inserted at about centre of face, well above lower ocular line; flagellum with white dense hairs; scape short, 0.53x eye height, reaching lower edge of anterior ocellus, about 5.0x as long as width; pedicel in lateral view about 1.7x as long as width; F1-F2 slightly transverse, equal in length and width, 1.5-1.4x as wide as long; F3- F6 slightly widening and shortening towards tip, F3 1.13x, F6 1.5x as wide as long; club 1.9x as long as wide; C1 1.15x as long as C2; club somewhat longer than pedicel plus anelli and F1 together; combined length of flagellum 2.54x as long as club, and 3.33x as long as scape.

Mesosoma (Figs. 1a,b,d) in profile almost flat dorsally, length about 2.0x height, in dorsal view slightly broader than head width (1.08x); pronotum rounded, with distinct neck and collar, anterior margin of collar not margined, posterior margin reticulate, with long pale hairs; mesoscutum with raised-reticulate, about 1.5x as wide as long; notauli very shallow and incomplete, with fine, long pale setae; scutellum (Fig. 1e) almost smooth with delicate reticulation, with conspicuously sublateral grooves, axilla with obviously longitudinal carina; 1.6x as long as minimum distance between axillary grooves; frenal area absent, with 3 pairs of setae laterally; propodeum (Fig. 1f) medially very short, almost reduced to a point, median area smooth and bare, forming an acute triangle area, sub-median area with white dense hairs; plica absent; propodeal spiracles large and subcircular, touching anterior propodeal margin. Forewing (Fig. 2a) 2.42x as long as wide; a/b 1.73x; costal cell (Figs. 2b,c) 8.6x as long as wide, with one complete row along margin, 2 at base, 3 rows setae in apical half; marginal vein 2.2x post marginal vein; post marginal vein 1.43x stigmal vein; stigma petiolate, 1.67x as long as

wide. Legs stout, hind coxae obviously enlarged and lengthened and approximately triangular in cross-section; both fore and hind femora enlarged, sub-flattened, but hind femora much larger than fore femora; all tibia with densely silvery hairs, hind tibia with 2 spurs.

Metasoma (Figs. 1a,b) elongate-acuminate, without petiole, about 2.43x as long as wide, about 1.54x as long as mesosoma length; MSt_1 and MSt_2 each with hind margins in middle portion roundly produced; last tergite (epipygium) about 1.55x as long as broad.

Male: unknown.

Materials studied: Holotype ♀, Turkey: Adana, Karataş, 08. viii. 2006, right antenna and forewing in slide, swept from pasture, M. Doğanlar, deposited in Insect Museum of Biological Control Station, Yüreğir, Adana, Turkey (IMBC).

Paratype: 1♀, same data as the holotype.

Comments: *Colotrechnus karatasensis* n. sp. is a unique species in the genus, but it may be similar to *Uriellopteromalus* spp. in having clypeal margin slightly emarginated medially, with a distinct impression above the emargination and body distinctly depressed dorsally, with both thorax and gaster broad and short, and marginal vein with but it differs from the species of *Uriellopteromalus* in having antennae attached in the middle of face, pronotum narrow, without any edge or carina, propodeum with a distinct median carina (in the species of *Uriellopteromalus* antennae attached below middle of face, propodeum rather broader and dorsally either with blunt transverse edge or a carina, propodeum without a distinct median carina (Boucek, 1988).

***Colotrechnus bekiralkani* n. sp.**

(Figs. 3a-e, 4a)

Etymology. The name is derived from the name of Prof. Dr. Bekir Alkan who is the first Turkish entomologist in Turkey.

Diagnosis. Clypeal margin entire, Female with antennal formula 11353; Head in frontal view slightly wider than high (40:34) and 1.73x as wide as length; POL 2.2 OOL; eye in frontal view about 2.7x as long as width. Malar space about 0.36x eye height; scape short, 0.45x eye height, not reaching lower edge of anterior ocellus, about 4.0x as long as width; pedicel in lateral view about 1.3x as long as width; F1–F3 distinctly transverse, equal in length and width, 2.14x as wide as long; F4 twice as wide as long; F5 slightly wider than F4, 2.2x as wide as long; club 1.9x as long as wide; C1 0.92x as long as C2; club as long as pedicel plus anelli and F1+F2 together. Combined length of flagellum 2.4x as long as club, and 2.3x as long as scape. Forewing 1.75x as long as wide; a/b 2.15x; costal cell 8.7x as long as wide, with one complete row along margin, 2 at base, 3 rows setae in apical half. Mesosoma (Fig. 3) in profile slightly convex dorsally, length about 1.34x wide in dorsal view, slightly broader than head width (1.1x); mesoscutum, about 1.9x as wide as long; scutellum 1.3x as long as space between sublateral grooves, with 3 pairs of bristles laterally; metasoma 37:18 (2.05x metasoma 1.32x as long as mesosoma, and 2.1x as long as width; last tergite (epipygium) about 1.4x as long as broad.

Description. Female: Body length. 1.3 mm.

Colour. Body black with metallic green reflection, antenna black, scape and pedicel with metallic green reflection; legs almost same colour with body, except tarsi white, except tips of pretarsi black. Wings hyaline, with pale venation and setae.

Head (Fig. 3b) in frontal view slightly wider than high (40:34), face smooth with fine reticulation; antennal scrobe broad, smooth, frontal area finely reticulate,

with white sparsely appressed pubescence; lower face faintly concave, bare; clypeal margin entire, mouth broad, about twice as wide as malar space. Eye in frontal view about 2.7x as long as width. Malar space about 0.36x eye height, malar sulcus developed finely, genal carina absent. Antennae (Fig. 3c) antennal formula 11353; inserted distinctly below centre of face, well above lower ocular line; flagellum with black dense hairs; scape short, 0.45x eye height, not reaching lower edge of anterior ocellus, about 4.0x as long as width; pedicel in lateral view about 1.3x as long as width; F1–F3 distinctly transverse, equal in length and width, 2.14x as wide as long; F4 twice as wide as long; F5 slightly wider than F4, 2.2x as wide as long; club 1.9x as long as wide; C1 0.92x as long as C2; club as long as pedicel plus anelli and F1+F2 together. Combined length of flagellum 2.4x as long as club, and 2.3x as long as scape.

Mesosoma (Figs. 3a,d) in profile slightly convex dorsally, length about 1.34x wide in dorsal view, slightly broader than head width (1.1x); pronotum rounded, with distinct neck and collar, anterior margin of collar not margined, posterior margin reticulate, with long pale hairs; mesoscutum (Fig. 3d) with engraved reticulation, about 1.9x as wide as long; with sparsely fine, long pale setae; notauli very shallow and incomplete; scutellum 1.23x as long as space between sublateral grooves, with fine reticulation, with conspicuous sublateral grooves, axilla with obviously longitudinal carina (Fig. 3d); frenal area absent, with 3 pairs of setae laterally; Forewing (Fig. 4a) densely hairy on both sides, 1.75x as long as wide; a/b 2.15x; costal cell 8.7x as long as wide, with one complete row along margin, 2 at base, 3 rows setae in apical half.; marginal vein 3.0x post marginal vein; post marginal vein 1.4x stigmal vein; stigma capitate, 2.3x as long as wide.

Metasoma (Figs. 3a,e) elongate-acuminate, without petiole, about 2.1x as long as wide, about 1.24x as long as mesosoma length; MSt1 and MSt2 each with hind margins in middle portion roundly produced; last tergite (epipygium) about 1.4x as long as broad.

Male: unknown.

Material studied: Holotype ♀, Turkey: Kahramanmaraş, Pazarcık, Sallıuşağı village 37° 30' 41" N, 37° 25' 31" E, 1180 m (junction of Araban-Pazarcık road and highway Gaziantep-Kahramanmaraş road (D3609), 02. viii. 2008, antennae and forewing in slide, swept from pasture, M. Doğanlar, deposited in Insect Museum of Biological Control Station, Yüreğir, Adana, Turkey (IMBC).

Comments: *Colotrechnus bekiralkani* n. sp. is a unique species in the genus, in having antennae with 3-segmented anelli. Beside this character it is similar to *Colotrechnus karataensis* n. sp. in having body slightly depressed dorsally, and gaster broad and short but *C. bekiralkani* n. sp. differs from *C. karataensis* n. sp. in having antennae attached distinctly below middle of face, anterior margin of clypeus entire, combined length of flagellum 2.4x as long as club, and 2.3x as long as scape. (in *C. karataensis* n. sp. antennae attached in the middle of face, anterior margin of clypeus slightly emarginated medially, with a distinct impression above the emargination, combined length of flagellum 2.54x as long as length of club and 3.33x as long as scape).

***Colotrechnus agromyzae* Subba Rao, 1981**

Colotrechnus agromyzae Subba Rao 1981: 475-476. Holotype female, Indonesia, Kismo Sukirdo, Paratypes: 2 females, 2 males (British Museum Natural History).

Diagnosis. Ovipositor not produced and 0.64x as long as last tergite; metasoma 1.77x as long as mesosoma; Pronotum much shorter than half length of mesoscutum in dorsal view; antennal insertion well lower than centre of face;

scape 2.55x as long as F1. Forewing 2.39x as long as broad; marginal vein 2.75x as long as post marginal vein; post marginal vein 1.46x as long as stigmal vein; head width in anterior view 1.56x distance between front ocellus and lower clypeal margin.

Distribution. Indonesia.

Host. *Agromyza* sp.

***Colotrechnus melghatlcus* Narendran & Girish Kumar, 2009**

Colotrechnus melghatlcus Narendran & Girish Kumar, 2009. Holotype Female. India: Maharashtra; Amaravathi Dt.; Melghat Wild Life sanctuary, Semodah, 22.ix. 2007, Coll. P. Girish Kumar (National Zoological Collection of Zoological Survey of India, Kolkata).

Diagnosis. Ovipositor produced; metasoma 1.86x as long as mesosoma; Pronotum equal to half length of mesoscutum in dorsal view; antennal insertion almost near centre of face; scape 2.35x as long as F1; Forewing 2.1x as long as broad; marginal vein 3x as long as post marginal vein; post marginal vein 2.1x as long as stigmal vein; Ovipositor sheath not exerted.. Head width in anterior view 1.36x distance between front ocellus and lower clypeal margin. Forewing 2.39x as long as wide; Hind femur 1.5x as long as hind coxa.

Distribution. India, Maharashtra; Amaravathi Dt.; Melghat Wild Life sanctuary, Semodah.

Host. Unknown.

***Colotrechnus subcoeruleus* Thomson, 1878**

(Figs. 5a-j, 4b)

Colotrechnus subcoeruleus Thomson 1878: 46. Female and male were described, types not designated, Syntypes: Öland, Gottland and Skane.

Colotrechnus subcoeruleus Thomson, Delucci, 1956: 234-236. Female and male were described and illustrated. Lectotype female, from Oeland, South Sweden, leg. Thomson, designated by Delucci, 1956: 236, In the Zoologischen Institut der Universitaete Lund (Collection Thomson); 1 female, Weyer (Austria), 28.viii. 1919, leg. Ruschka; 1 female, Ligurisch. Apennin (Italy), leg. G. Mantero, Both of them in Coll. Masi, Museum Genova.

Colotrechnus subcoeruleus Thomson, Graham, 1969: 851.

Diagnosis. Antenna with all funicular segments longer than wide, mesosoma with dense long fine setae. Fore wing with distinct infumation below marginal vein; marginal vein 2.38x as long as post marginal vein; post marginal vein 1.6x as long as stigmal vein; antennal formula 11263; scape long, 0.7x eye height, not reaching lower edge of anterior ocellus, about 7.0x as long as width; POL 2.6 OOL; pedicel in lateral view about 1.9x as long as width; funicular segments longer than wide, almost in same width, F1 with 3 sensillae in a row from base to tip and 3 sensillae in apical part, F2 with 5 linear sensillae almost in 3 rows, other segments with 2 rows sensillae; F1 2.0x, F2 1.5x, F3 1.33x, F4-F5 1.25x, F6 1.15x as long as wide; club 2.5x as long as wide; C1 1.14x as long as C2; club as long as pedicel plus anelli and 1/2 F1 together; combined length of flagellum 4.1x as long as length of club, and 2.1x as long as scape; Forewing 2.06x as long as wide; a/b 1.57x; costal cell 8.5x as long as wide, with 3 rows setae. Mesosoma about 1.43x as long as wide in dorsal view, slightly narrower than head width (0.93x); mesoscutum with fine about 1.55x as wide as length; scutellum 1.2x as long as space between sublateral groves, with at least 5 rows of setae; hind femur 1.76x as long as hind coxa. Metasoma about 3.2x as long as wide, about 2.0x as long as mesosoma length; last tergite (epipygium) about 1.4x as long as broad; ovipositor 0.4x as long as last tergite.

Description from the specimens of Turkey**Female:** Body (Figs. 5a,b) length. 3.2-3.9 mm.

Colour. Body dark blue to violet, with metallic greenish reflection, antenna black, scape, pedicel and last segments of club testaceous; legs almost same colour with body, except tarsi with metatarsi white, except hind tarsi with 1-2. segments white, other segments pale brown, all of pretarsi black. Wings with pale brown cloud below marginal vein, venation brown, setae black.

Head (Fig. 5c) in frontal view slightly wider than high (45:40), face smooth with fine reticulation; antennal scrobe broad, smooth, frontal area finely reticulate, with white sparsely appressed pubescence; lower face faintly concave, bare; clypeal margin entire, mouth 1.2x as wide as malar space. Eye in frontal view about 2.75x as long as width. Malar space about 0.36x eye height, malar sulcus developed finely, genal carina absent. Antennae (Fig. 5e) inserted distinctly below centre of face, well above lower ocular line; flagellum with white dense hairs; antennal formula 11263; scape long, 0.7x eye height, not reaching lower edge of anterior ocellus, about 7.0x as long as width; pedicel in lateral view about 1.9x as long as width; funicular segments longer than wide, almost in same width, F1 (Fig. 5f) with 3 sensillae in a row from base to tip and 3 sensillae in apical part, F2 with 5 linear sensillae almost in 3 rows, other segments with 2 rows sensillae; F1 2.0x, F2 1.5x, F3 1.33x, F4-F5 1.25x, F6 1.15x as long as wide; club 2.5x as long as wide; C1 1.14x as long as C2; club as long as pedicel plus anelli and ½ F1 together. Combined length of flagellum 4.1x as long as club, and 2.1x as long as scape.

Mesosoma (Fig. 5d) in profile slightly convex dorsally, about 1.43x as long as wide in dorsal view, slightly narrower than head width (0.93x); pronotum rounded, with distinct neck and collar, anterior margin of collar not margined, posterior margin reticulate, with long pale dense hairs; mesoscutum with fine, engraved reticulation, about 1.55x as wide as long; with dense fine, long pale setae; notauli very shallow and incomplete; scutellum 1.2x as long as space between sublateral grooves, with fine reticulation, with conspicuous sublateral grooves, axilla with obviously longitudinal carina (Figs. 1, 4); frenal area absent, with at least 5 rows of setae.

Forewing (Fig. 4b) densely hairy on both sides, 2.1x as long as wide; a/b 1.57x; costal cell 8.5x as long as wide, with one complete row along margin, at least 3 rows setae in apical half; marginal vein 3.2x post marginal vein; post marginal vein, 3.2x stigmal vein; stigma petiolate, as long as wide.

Metasoma (Figs. 5a,b) elongate-acuminate, without petiole, about 3.2x as long as wide, about 2.0x as long as mesosoma length; MSt1 and MSt2 each with hind margins in middle portion roundly produced; last tergite (epipygium) about 1.4x as long as broad; ovipositor 0.4x as long as last tergite.

Male: Body length. 3.0 mm. Similar to female except as follows: eye 1.75x as long as wide; antennal formula 11353. Scape 3.6x as long as wide; pedicel 1.5x as long as wide; Combined length of flagellum 3.36x as long as length of club and 4.4x as long as scape; funicular segments with 3 linear sensillae in a row apically; F1 1.93x; F2-F5 1.3-1.2x as long as wide; club 3.9-4.3x as long as wide; C1 0.72x as long as C2+C3; Forewing without cloud. Mesosoma 1.5x as long as wide; mesoscutum 0.7x as long as wide; scutellum almost as long as wide; metasoma 0.86x as long as mesosoma, and 1.85x as long as wide.

Material studied: Turkey: Tokat, 1♀, 08. vi. 1986, antennae and forewing in slide, H. Çam. 1♀, 28. v. 1989, 1 ♂ 17.vii. 1989, H. Çam; Teknepinar, 1♂, 06.viii. 1986, M. Doğanlar, all of the specimens were swept from pasture, and deposited in Insect Museum of Biological Control Station, Yüreğir, Adana, Turkey (IMBC).

Comments: *Colotrechnus subcoeruleus* is similar to *Colotrechnus melghatlcus* Narendran & Girish and *Colotrechnus agromyzae* Subba Rao in having antennae with all funicular segments longer than wide, but it differs from both of them in having forewing with brownish cloud below marginal vein.

Biology. *Melanagromyza* sp. (Diptera: Agromyzidae) in India; reared from pods of *Glaucinia flava* (Papaveraceae) in France (Andriescu & Mitroiu, 2001).

Distribution. Britain, Sweden, Austria, Italy, Czechoslovakia (Graham, 1969); Europe as far as Transkaukazia, Romania, (Andriescu & Mitroiu, 2001), Spain (Li et al., 2014).

Colotrechnus kemaliyenensis n. sp.

(Figs. 6a-g; 4c)

Etymology. The name is derived from the name of Kemaliye, Erzincan from which the types were collected.

Diagnosis. Antennal formula 11353; Combined length of flagellum 4.7x as long as length of club, and 5.45x as long as scape.; F1 and F2 with one linear sensillae; club 3.3-3.5x as long as wide; C1 0.93x as long as C2+C3; Head in frontal view 1.42x as wide as high, and twice as wide as length, Eye in frontal view about 1.5x as long as width. Malar space about 0.3x eye height, POL 2.3x OOL. Forewing 1.9x as long as wide; a/b 1.9x; costal cell 6.25x as long as wide, with one complete row, and a half row at setae. Mesosoma in profile slightly convex dorsally, about 1.64x as long as wide in dorsal view, as wide as head; mesoscutum about 1.34x as wide as long; scutellum 1.3x as long as space between sublateral groves, with at least 6 rows of setae; Metasoma short, about 1.85x as long as wide, about 0.86x as long as mesosoma.

Description. Male: Body (Fig. 6a) length. 1.53 mm.

Colour. Body dark blue to violet, with metallic greenish reflection, antenna black, last segments of club testaceous; legs almost same colour with body, except tarsi with 1-4 segments testaceous, pretarsi black. Wings with venation and setae black. Head in frontal view 1.42x as wide as high, and twice as wide as length. Face smooth with fine reticulation; antennal scrobe broad, smooth, frontal area finely reticulate, with white sparsely appressed pubescence; lower face faintly concave, bare; clypeal margin entire, mouth almost 2x as wide as malar space. Eye in frontal view about 1.5x as long as width. Malar space about 0.3x eye height, malar sulcus developed finely, genal carina absent. POL 2.3x OOL. Antennae (Fig. 6d) inserted distinctly below centre of face, well above lower ocular line; flagellum with black dense hairs; antennal formula 11353; scape 3.33x as long as wide, 0.5x eye height, not reaching lower edge of anterior ocellus; pedicel (Fig. 6e) in lateral view about 1.1x as long as wide; funicular segments longer than wide, almost in same width, F1 and F2 with one linear sensillae (Fig. 6e), F3-F5 with 2 sensillae apically; F1 2.36x; F2-F4 1.5-1.6x; F5 1.75x as long as wide; club (Figs. 6f-g) 3.3-3.5x as long as wide; C1 0.8-0.9x as long as C2+C3; combined length of flagellum 3.95-4.7x as long as length of club, and 5.45-5.53x as long as scape.

Mesosoma (Fig. 6b) in profile slightly convex dorsally, about 1.64x as long as wide in dorsal view, as wide as head; pronotum rounded, with distinct neck and collar, anterior margin of collar not margined, posterior margin reticulate, with long pale dense hairs; mesoscutum with fine, engraved reticulation, about 1.34x as wide as long; with dense fine, long pale setae; notauli very shallow and incomplete; scutellum (Fig. 6c) 1.3x as long as space between sublateral groves, with fine reticulation, with conspicuous sublateral grooves, axilla with obviously longitudinal carina; frenal area absent, with at least 6 rows of setae; Forewing densely hairy on both sides, 1.9x as long as wide; a/b 1.9x; marginal vein 2.45x

post marginal vein; post marginal vein 1.4x stigmal vein; stigma petiolate, as long as wide costal cell 6.25x as long as wide, with one complete row, and a half row at setae (Fig. 7).

Metasoma (Fig. 6a) short, without petiole, about 1.85x as long as wide, about 0.86x as long as mesosoma length.

Material studied: Holotype male. Turkey: Erzincan, Kemaliye, Yuva village, 18. vi. 1982, antennae and forewing in slide, swept from pasture, M. Doğanlar, deposited in Insect Museum of Biological Control Station, Yüreğir, Adana, Turkey (IMBC).

Comments: *Colotrechnus kemaliyenensis* n. sp. is similar to *Colotrechnus subcoeruleus* Thomson in having antennae with all funicular segments longer than wide, but it differs from *C. subcoeruleus* in having combined length of flagellum 3.95-4.7x as long as length of club, and 5.45-5.53x as long as scape; scape 3.33x as long as wide; pedicel 1.1x as long as wide; F1 and F2 with one linear sensillae, F3-F5 with 2 sensillae apically; F1 2.36x; F2-F4 1.5-1.6x; F5 1.75x as long as wide; club 3.3-3.5x as long as wide; C1 0.8-0.9x as long as C2+C3; Forewing 1.9x as long as wide; a/b 1.9x; costal cell 6.25x as long as wide, with one complete row, and a half row at setae; mesosoma 1.64x as long as wide; (in male of *C. subcoeruleus* combined length of flagellum 3.36x as long as length of club and 4.4x as long as scape; funicular segments with 3 linear sensillae in a row apically; scape 3.6x as long as wide; pedicel 1.5x as long as wide; F1 1.93x; F2-F5 1.3-1.2x as long as wide; club 3.9-4.3x as long as wide; C1 0.72x as long as C2+C3; mesosoma 1.5x as long as wide; mesoscutum 0.7x as long as wide; scutellum almost as long as wide; metasoma 0.86x as long as mesosoma, and 1.85x as long as wide).

Colotrechnus mustafaoezeri n. sp.

(Figs. 7a-i, 4d)

Etymology. The name is derived from the name of Prof. Dr. Mustafa Özer who was a Turkish entomologist in the Ankara University.

Diagnosis. Mesosoma bicoloured: pronotum, scutellum and propodeum pale yellow; female club with distinct spicula; clypeus delimited by distinct groove and with apical margin entire; combined length of flagellum 2.7x as long as length of club; club 1.9x as long as wide; C1 1.31x as long as C2; combined length of flagellum 2.7x as long as scape, Forewing 2.42x as long as wide; a/b 2.8x; costal cell 8.6x as long as wide, with one complete row, and a half row at setae. Head in frontal view slightly wider than high (38:35) and 1.9x as wide as length; POL 3x OOL; Eye in frontal view about 2.2x as long as width. Malar space about 0.31x eye height, mesosoma 1.44x as long as width in dorsal view, distinctly narrower than head width (0.66x); mesoscutum about 1.5x as wide as long; scutellum 1.18x as long as minimum distance between axillary grooves, with 4 pairs of setae laterally; metasoma 4.35x as long as width, and 2.5x as long as mesosoma. Last tergite (epipygium) about 1.33x as long as broad; ovipositor almost 0.5x as long as the last tergite.

Description. Female: Body (Figs. 7a-c) length 1.4 mm.

Colour. Body mainly testaceous, with weak metallic green reflection, head and mesosoma (Figs. 7c-e) bicoloured: head in lower half, pronotum, scutellum and propodeum pale yellow, antenna with scape and pedicel darker with metallic green reflection, flagellum pale; legs pale yellow, metasoma fuscous with some fuscous areas. Wings hyaline, with pale venation and setae.

Head (Fig. 7d) in frontal view slightly wider than high (38:35), face with fine reticulation; antennal scrobe broad, smooth, frontal area finely reticulate, with

white appressed pubescence; lower face faintly concave, bare; clypeus delimited by distinct groove and with apical margin entire; mouth broad, about 2.35x as wide as malar space. Eye in frontal view about 2.2x as long as width. Malar space about 0.31x eye height, malar sulcus finely developed, genal carina absent. POL 3x OOL. OOL almost equal to diameter of ocellus. Antennae (Fig. 7g) inserted distinctly below centre of face, well above lower ocular line; flagellum with pale long hairs; antennal formula 11263; scape short, 0.34x eye height, not reaching lower edge of anterior ocellus, about 4.3x as long as width; pedicel (Fig. 7h) in lateral view about 1.25x as long as width; F1–F2 (Fig. 7h) distinctly transverse, equal in length and width, 1.9x as wide as long; F3–F5 equal in length and width, 1.4x as wide as long; F6 (Fig. 7i) slightly wider and longer than F5, 1.43x as wide as long; club (Fig. 7g, i) plus spicula 2.14x as long as wide; C1–C3 almost in same length; club as long as pedicel plus anelli and F1+F2 together. Combined length of flagellum 2.7x as long as club, and 2.7x as long as scape.

Mesosoma (Figs. 7a,e) in profile slightly convex dorsally, length about 1.44x wide in dorsal view, distinctly narrower than head width (0.66x); pronotum rounded, with distinct neck and collar, 2.25x as wide as long, reticulated, anterior margin of collar not margined, with long pale setae; mesoscutum (Figs. 7e,f) with engraved, broad reticulation, about 1.5x as wide as long; with sparse, fine, long pale setae; notauli very shallow and incomplete; scutellum 1.18x as long as space between sublateral grooves, almost smooth, with conspicuous sublateral grooves, axilla with obviously longitudinal carina; frenal area absent, with 4 pairs of setae laterally; propodeum broad, median area finely reticulated, median carina weak, forming an acute triangle area, submedian area with white hairs; plica absent; propodeal spiracles large and subcircular, touching anterior propodeal margin.

Forewing (Fig. 4d) with pale setae, upper side sparse, lower side densely hairy, 2.42x as long as wide; a/b 2.8x; costal cell 8.6x as long as wide, with one complete row along margin, 2 rows setae in apical half; marginal vein 2.3x post marginal vein, and 3.75x as long as stigmal vein; post marginal vein 1.6x stigmal vein; stigma shortly petiolate, as long as wide.

Metasoma (Figs. 7a–c) long, without petiole, about 4.35x as long as wide, about 2.4x as long as mesosoma length; MSt1 and MSt2 each with hind margins in middle portion roundly produced; last tergite (epipygium) about 1.33x as long as broad; ovipositor almost 0.5x as long as the last tergite.

Male: unknown.

Material studied: Holotype ♀, Turkey: Konya, Karatay, Sakyatan village, 40 km from Konya to Karapınar, 23. vi. 2011, antennae and forewing in slide, swept from pasture, M. Doğanlar, deposited in Insect Museum of Biological Control Station, Yüreğir, Adana, Turkey (IMBC).

Comments: *Colotrechnus mustafaoezeri* n. sp. is a unique species in the genus, in having female club with distinct spicula; clypeus delimited by distinct groove and with apical margin entire; body testaceous, except head and mesosoma bicoloured: head in lower half, pronotum, scutellum, propodeum and legs pale yellow.

***Colotrechnus ignotus* Burks, 1958**

(Fig. 1. of Burks, 1958 and figs given by CNCHYM)

Colotrechnus ignotus Burks, 1958:13–16. Holotype female, USA. Florida, Marion Co., the type, allotype, 34 females, 1 male paratype deposited in the U. S. National Museum Collection; 10 females and 1 male deposited in the collection of Florida State Plant Board, Gainesville, Florida (Burks, 1958).

Diagnosis. Combined length of flagellum 2.7x as long as club, and 2.1x as long as scape; Forewing 2.33x as long as wide, and a/b 2.7x; costal cell 6.0x as long as wide; mesoscutum with sparse, short and appressed pubescence; POL 2× OOL; club 1.8x as long as wide; C1 1.54x as long as C2; costal cell with lower side one complete row, and in apical half with 2nd row long bristles; stigmal vein not petiolate, stigmal vein almost as long as wide, stigma as long as wide; metasoma twice as long as mesosoma.

Host. Unknown. Some specimens taken by sweeping *Erigeron quercifolius*, and from *Melilotus alba*, *Bidens pilosa*; *Flaveria linearis* by R. A. Morse and other collectors (Burks, 1958).

Distribution. U.S.A.

Colotrechnus zduetzguenesae n. sp.

(Figs. 8a-h; 4e)

Etymology. The name is derived from the name of Prof. Dr. Zeliha Düzgünes who was a Turkish entomologist in the Ankara University.

Diagnosis. Combined length of flagellum 3.5-3.7x as long as club, and 2.64x as long as scape; metasoma 2.34x as long as mesosoma; costal cell 7.9x as long as wide; club 1.8x as long as wide, C1 1.67x as long as C2; forewing 2.21x as long as wide; costal cell with upper side bare, lower side medially bare, at base 3-4 rows, in apical 2 rows of setae; stigma petiolate, stigmal vein more than twice as long as wide, stigma slightly wider than long; Head in frontal view 1.25x as wide as high, and 2.3x as wide as length; POL 2.67x OOL; eye in frontal view about 1.7x as long as width; malar space about 0.35x eye height; mesosoma 1.4x as long as wide in dorsal view, slightly wider than head; mesoscutum about 1.52x as wide as long; scutellum 1.4x as long as space minimum distance between axillary grooves, with 3 pairs of setae laterally, 4 setae basally; metasoma about 2.48x as long as wide, about 1.82x as long as mesosoma length; last tergite 1.5x as long as wide; ovipositor sheath 0.47x as long as last tergite.

Description. Female: Body (Figs. 8a,b) length. 2.45 mm.

Colour. Body dark blue to violet, with metallic greenish reflection, antenna brown, last segments of club testaceous; legs almost same colour with body, except tarsi with 1-4 segments testaceous, pretarsi black. Wings with venation and setae pale.

Head (Figs. 8c,d) in frontal view 1.25x as wide as high, and 2.3x as wide as length. Face with fine reticulation; antennal scrobe broad, smooth, frontal area finely reticulate, with white sparsely placed, appressed pubescence; lower face faintly concave, with fine white pubescence; clypeal margin entire, mouth broad, almost 2.8x as wide as malar space. Eye in frontal view about 1.7x as long as width. Malar space about 0.35x eye height, malar sulcus finely developed, genal carina absent. POL 2.67x OOL. Antennae (Figs. 8c,e) inserted distinctly below centre of face, well above lower ocular line; flagellum with white, dense hairs; antennal formula 11263; scape 3.1x as long as wide; scape long, 0.42x eye height, its tip well below lower edge of anterior ocellus; pedicel in lateral view 1.5x as long as wide; funicular segments transverse, almost in same width and length, except F1 almost quadrate, F2-F5 1.6x, F6 2.2x as long as wide, with 5-6 linear sensillae in a row; club 1.8x as long as wide; C1 1.7x as long as C2; combined length of flagellum 3.56x as long as length of club, and 2.64x as long as scape.

Mesosoma (Figs. 8a,f) in profile mesoscutum almost flat, especially scutellum distinctly convex dorsally, about 1.4x as long as wide in dorsal view, slightly wider than head; pronotum rounded, with distinct neck and collar, anterior margin of collar not margined, posterior margin finely reticulate, with short pale hairs; mesoscutum (Fig. 8f) with fine, reticulation, about 1.52x as wide as long; with

sparse fine, short pale setae; notauli very shallow and incomplete; scutellum (Fig. 8g) 1.4x as long as space between sublateral grooves, with fine reticulation, with conspicuous sublateral grooves, axilla with obviously longitudinal carina; frenal area absent, with 3 pairs lateral of setae, and 4 basal long setae.

Forewing (Fig. 4e) densely hairy on both sides, 2.2x as long as wide; a/b 2.0x; marginal vein 2.5x post marginal vein, and 4.2x stigmal vein; post marginal vein 1.7x stigmal vein; stigma petiolate, as long as wide; costal cell 7.9x as long as wide, hair rows broken medially, apically 2 rows, basally 4 rows setae.

Metasoma (Figs. 8a,b) short, without petiole, about 2.48x as long as wide, about 1.82x as long as mesosoma length; last tergite 1.5x as long as wide; ovipositor sheath 0.47x as long as last tergite.

Male: Similar to female except as follows: antennal formula 11353 (Fig. 8h). scape 2.73x as long as wide; pedicel in lateral view 1.25x as long as wide; funicular segments transverse, F1-F2 1.33x, F3-F5 1.55x, as long as wide, with 3-4 linear sensillae in a row; club 1.5x as long as wide; C1 as long as C2; combined length of flagellum 3.2x as long as length of club, and 3.0x as long as scape. Metasoma 1.2x as long as mesosoma, 2.3x as long as wide.

Material studied: Holotype female. Turkey: Adana, 25. vii. 1987, swept from *Cetauria iberica*, M. Doğanlar, deposited in Insect Museum of Biological Control Station, Yüreğir, Adana, Turkey (IMBC). Paratypes: 12 females, 7 males, same data as the holotype, antennae and forewings of female and male of them were slide mounted in Canada Balsam.

Comments: *Colotrechnus zduetzguenesae* n. sp. is similar to *Colotrechnus ignotus* Burks and *Colotrechnus hasangirayi* n.sp. in having ovipositor sheath distinctly exerted. But *C. zduetzguenesae* n.sp. differs from *C. ignotus* in having combined length of flagellum 3.5-3.7x as long as club, and 2.64x as long as scape; forewing 2.21x as long as wide; a/b 2.0x; costal cell 7.86x as long as wide (in *C. ignotus* combined length of flagellum 2.7x as long as club, and 2.1x as long as scape; forewing 2.33x as long as wide, and a/b 2.7x; costal cell 6.0x as long as wide). *C. zduetzguenesae* n. sp. also differs from *C. hasangirayi* n. sp. in having combined length of flagellum 3.5-3.7x as long as club, and 2.64x as long as scape; Club 1.8x as long as wide, C1 1.67x as long as C2; Forewing 2.21x as long as wide; costal cell with upper side bare, lower side medially bare, at base 3-4 rows, in apical 2 rows of setae; scutellum with 3 pairs of setae laterally, 4 setae basally; last tergite (epipygium) about 1.5x as long as broad; ovipositor sheath 0.47x as long as last tergite. (in *C. hasangirayi* n. sp. combined length of flagellum 3.2x as long as club and 2.1x as long as scape; Club 1.56x as long as wide, C1 1.5x as long as C2; Forewing 2.15x as long as wide; a/b 2.0x; costal cell with upper side bare, lower side with 1 complete row, at base 2 rows, in apical 3 rows of setae; Scutellum with 3 pairs of setae laterally, 4 pairs in 2 rows medially; last tergite (epipygium) about 0.8x as long as broad; ovipositor sheath 1.64x as long as last tergite.). In male *C. zduetzguenesae* n. sp. also differs from *C. hasangirayi* n. sp. in having scape 2.73x as long as wide; pedicel in lateral view 1.25x as long as wide; F1-F2 1.33x, F3-F5 1.55x, as long as wide, with 3-4 linear sensillae in a row; club 1.5x as long as wide; C1 as long as C2; combined length of flagellum 3.0x as long as scape. Metasoma 1.2x as long as mesosoma, 2.3x as long as wide (in *C. hasangirayi* n. sp. scape 4.3x as long as wide; pedicel in lateral view as long as wide; F1 almost quadrate; F2-F3 1.5x as long as wide, with 2-3 linear sensillae in a row; club 1.74x as long as wide; C1 1.8x as long as C2; combined length of flagellum 2.56x as long as scape. Metasoma 0.8x as long as mesosoma, 1.5x as long as wide).

Colotrechnus hasangirayi n. sp.

(Figs. 9a-g, 4f)

Etymology. The name is derived from the name of Prof. Dr. Hasan Giray who was a Turkish entomologist in the Ege University.

Diagnosis. Combined length of flagellum 3.2x as long as club and 2.1x as long as scape; metasoma 1.93x as long as mesosoma; costal cell 8.6x as long as wide; club 1.56x as long as wide, C1 1.5x as long as C2; forewing 2.15x as long as wide; a/b 2.0x; costal cell with upper side bare, lower side with 1 complete row, at base 2 rows, in apical 3 rows of setae; stigmal vein not petiolate, wider than long, stigma longer than wide; head in frontal view 1.13x as wide as high, and 2.25x as wide as length POL 3.0x OOL; eye in frontal view about 3.0x as long as width; malar space about 0.34x eye height; mesosoma about 1.32x as long as wide in dorsal view, slightly wider than head; mesoscutum about 1.37x as wide as long; scutellum 1.33x as long as minimum distance between axillary grooves, with 3 pairs of setae laterally, 4 pairs in 2 rows medially; metasoma about 2.6x as long as wide, about 1.93x as long as mesosoma length; last tergite (epipygium) about 0.8x as long as broad; ovipositor sheath 1.64x as long as last tergite.

Description. Female: Body (Fig. 9a) length. 2.5 mm.

Colour. Body dark blue to violet, with metallic greenish reflection, antenna brown, last segments of club testaceous; legs almost same colour with body, except tarsi pale yellow, except pretarsi testaceous. Wings with venation and setae pale yellow. Head (Figs. 9c,d) in frontal view 1.13x as wide as high, and 2.25x as wide as length. Face with fine reticulation; antennal scrobe broad, smooth, frontal area finely reticulate, with white sparsely placed, appressed pubescence; lower face faintly concave, with fine white pubescence; clypeal margin entire, mouth broad, almost 3.0x as wide as malar space. Eye in frontal view about 3.0x as long as width. Malar space about 0.34x eye height, malar sulcus finely developed, genal carina absent. POL 3.0x OOL. Antennae (Fig. 9e) inserted distinctly below centre of face, well above lower ocular line; flagellum with white, dense hairs; antennal formula 11263; scape 4.2x as long as wide; scape long, 0.56x eye height, its tip well below lower edge of anterior ocellus; pedicel in lateral view 1.8x as long as wide; funicular segments transverse, almost in same length, slightly widening towards tip, F1-F2 1.8x, F6 1.9x as long as wide, with 4-5 linear sensillae in a row; club 1.56x as long as wide; C1 1.5x as long as C2; combined length of flagellum 3.2x as long as length of club, and 2.1x as long as scape.

Mesosoma (Figs. 9b,f) in profile mesoscutum distinctly convex dorsally, especially scutellum almost flat, about 1.32x as long as wide in dorsal view, slightly wider than head; mesoscutum (Fig. 9f) with fine, reticulation, about 1.37x as wide as long, with sparse, fine, short, pale setae; notauli very shallow and incomplete; scutellum 1.33x as long as space between sublateral grooves, having fine reticulation, with conspicuous sublateral grooves, axillula with obviously longitudinal carina; frenal area absent, with 3 pairs of setae laterally, 4 pairs in 2 rows medially.

Forewing (Fig. 4f) densely hairy on both sides, 2.15x as long as wide; a/b 2.0x; marginal vein 2.9x post marginal vein, and 3.63x stigmal vein; post marginal vein 1.25x stigmal vein; stigma petiolate, as long as wide; costal cell 8.6x as long as wide, with 1 complete row. 2 rows basally, 3 rows apically setae.

Metasoma (Fig. 9a) long, without petiole, about 2.6x as long as wide, about 1.93x as long as mesosoma length; last tergite (epipygium) about 0.8x as long as broad; ovipositor sheath 1.64x as long as last tergite.

Male: Similar to female except as follows: antennal formula 11353 (Fig. 9g). Scape 4.3x as long as wide; pedicel in lateral view as long as wide; funicular

segments transverse, except F1 almost quadrate; F2-F3 1.5x, F4-F5 1.5x as long as wide, with 2-3 linear sensillae in a row; club 1.74x as long as wide; C1 1.8x as long as C2; combined length of flagellum 3.3x as long as length of club, and 2.56x as long as scape. Metasoma 0.8x as long as mesosoma, 1.5x as long as wide.

Material studied: Holotype female. Turkey: Erzurum, Horasan, Karacuha, 30. v. 1980, swept from pasture, M. Doğanlar, deposited in Insect Museum of Biological Control Station, Yüreğir, Adana, Turkey (IMBC). Paratypes: 3 females, 1 male, same data as the holotype, antennae and forewings of holotype and paratype male were slide mounted in Canada Balsam.

Comments: *Colotrechnus hasangirayi* n. sp. is similar to *C. zduetzguenesae* n. sp. The species was discussed before.

***Colotrechnus birecikensis* n. sp.**

(Figs. 10a-g, 4g)

Etymology. The name is derived from the name of Birecik, Şanlıurfa from which the types were collected.

Diagnosis. Antenna with F1 almost quadrate; combined length of flagellum about 3.1-3.7 x as long as length of club, and 2.9-3.1 x as long as scape; F1 0.75-0.93x as wide as long, with 5 linear sensillae; F2-F4 almost same length and width, 1.3-1.5x as wide as long; F5-F6 slightly widening, F5 1.5x, F6 1.67x as wide as long; F6 1.1-1.43x wider than F2; club 1.74x (2.25) as long as wide; C1 1.25x as long as C2; forewing 2.1x as long as wide; a/b 2.0x; costal cell 7x as long as wide, with 2-3 complete rows of setae. Head in frontal view 1.5x as wide as high, and 2.67x as wide as length; POL 2.6x OOL; eye in frontal view about 3.33x as long as width; malar space about 0.31x eye height, mesosoma about 1.33x as long as wide in dorsal view, slightly narrower than head; mesoscutum about 1.43x as wide as long; scutellum 1.22x as long as minimum distance between axillary grooves, with 2 pair setae laterally, 1-2 setae basally; metasoma about 3.0x as long as wide, about 1.52x as long as mesosoma length; last tergite (epipygium) about 1.6x as long as broad; ovipositor sheath 0.15x as long as last tergite.

Description. Female: Body (Figs. 10a,b) length. 2.3 mm.

Colour. Body dark blue to violet, with metallic greenish reflection, antenna brown; legs almost same colour with body, except tarsi pale yellow, pretarsi testaceous. Wings with venation testaceous, setae pale yellow.

Head (Figs. 10c,d) in frontal view 1.5x as wide as high, and 2.67x as wide as length. Face with fine reticulation; antennal scrobe broad, smooth, frontal area finely reticulate, with white sparsely placed, appressed pubescence; lower face faintly concave, with fine white pubescence; clypeal margin entire, mouth narrow, almost 2.3x as wide as malar space. Eye in frontal view about 3.33x as long as width. Malar space about 0.31x eye height, malar sulcus finely developed, genal carina absent. POL 2.6x OOL. Antennae (Fig. 10e) inserted distinctly below centre of face, well above lower ocular line; flagellum with white, dense hairs; antennal formula 11263; scape 3.3x as long as wide; scape long, 0.45x eye height, its tip well below lower edge of anterior ocellus; pedicel in lateral view 1.6x as long as wide; funicular segments distinctly transverse, except F1 slightly, almost in same length, and width, F1 1.2x; F2 1.6x, F3-F6 1.4x as long as wide, with 4-5 linear sensillae in a row; club 2.1x as long as wide; C1 1.15x as long as C2; combined length of flagellum 3.2x as long as length of club, and 2.85x as long as scape.

Mesosoma (Fig. 10f) in profile distinctly convex dorsally, about 1.33x as long as wide in dorsal view, slightly narrower than head; pronotum rounded, with distinct neck and collar, anterior margin of collar not margined, posterior margin finely reticulate, with short pale hairs; mesoscutum with fine reticulation, about 1.43x as

wide as long, with sparse, fine, long, pale setae; notauli very shallow and incomplete; scutellum (Figs. 10f,g) 1.22x as long as space between sublateral grooves, having fine reticulation, with conspicuous sublateral grooves, axilla with obviously longitudinal carina; frenal area absent, with 3 pairs of long setae laterally, 4 setae basally; propodeum (Fig. 10g) short, almost reduced to a point medially, median area finely reticulated, median carina distinct, forming an acute triangle area, submedian area finely reticulated; plica absent; propodeal spiracles large and subcircular, almost a diameter far from anterior propodeal margin. Forewing (Fig. 4g) densely hairy on both sides, 2.2x as long as wide; a/b 2.0x; marginal vein 2.5x post marginal vein, and 3.6x stigmal vein; post marginal vein 1.43x stigmal vein; stigma petiolate, almost as long as wide; costal cell 6.9x as long as wide, with 3-4 complete rows setae.

Metasoma (Figs. 10a,b) long, without petiole, about 3.0x as long as wide, about 1.52x as long as mesosoma length; last tergite (epipygium) about 1.6x as long as broad; ovipositor sheath 0.15x as long as last tergite.

Male: similar to female except as follows: antennal formula 11353 (Fig. 10h). Scape 3.7x as long as wide; pedicel in lateral view 1.33x as long as wide; funicular segments transverse, except F11.3x, F2-F5 1.6x, as long as wide, with 3-5 linear sensillae in a row; club 1.35x as long as wide; C1 0.9x as long as C2; combined length of flagellum 3.1x as long as length of club, and 2.9x as long as scape. Metasoma 0.8x as long as mesosoma, 1.4x as long as wide.

Material studied: Holotype female. Turkey: Şanlıurfa, Birecik, İnnaplı, 30. v. 1980, swept from pasture, M. Doğanlar, deposited in Insect Museum of Biological Control Station, Yüreğir, Adana, Turkey (IMBC). Paratypes: 1 female, Kahramanmaraş, Pazarcık, Sallıuşağı village 37° 30' 41" N, 37° 25' 31" E, 1180 m (junction of Araban-Pazarcık road and highway Gaziantep-Kahramanmaraş road (D3609), 02. viii. 2008, M. Doğanlar, 25 females, 8 males, Adana, 25. vii. 1987, swept from *Cetauria iberica*, M. Doğanlar, 1 female, Hatay, Reyhanlı, Atçana, swept from pasture, M. Doğanlar; 1 female, Taynat, swept from pasture, M. Doğanlar, antennae and forewings of holotype were slide mounted in Canada Balsam, deposited in (IMBC).

Comments: *Colotrechnus birecikensis* n. sp. is similar to *Colotrechnus viridis* (Masi), *Colotrechnus akıfkansui* n. sp. and *Colotrechnus taşlıçayensis* n. sp. in having ovipositor not produced. But it differs from all of them in having antenna with F1 quadrate, at most slightly transverse; combined length of flagellum 3.2x as long as length of club (in the similar species mentioned above antenna with F1 distinctly transverse; combined length of flagellum at most 2.7x as long as club).

***Colotrechnus viridis* (Masi, 1921)**

(Figs. 11a-g; 4h)

Zanonia viridis Masi, 1921: 20-22. Holotype female in Zoological Museum, Lund University, Sweden. Type Locality: Libya.

Colotrechnus viridis (Masi) Delucchi 1956: 233; Graham 1969: 851; Bouček 1993: 1304; Narendran & Girish Kumar, 2009: 30.

Diagnosis. F1 with at least 4 linear sensillae, F2-F6 at least 5-6 linear sensillae; club 1.3-1.5x as long as wide; C1 1.14-1.36x as long as C2; combined length of flagellum 2.1-2.55x as long as club; 3.22-3.7x as long as scape; forewing 2.02-2.55x as long as wide; a/b 1.7-2.5x; costal cell 7.5-8.0x as long as wide, with 1 complete rows, at base and apical about 2-3 rows of setae; head in frontal view 1.16-1.2x as wide as high, and 2.28x as wide as length, POL 2.25x OOL; eye in frontal view about 2.75x as long as width. malar space about 0.4x eye height; mesosoma about 1.6x as long as wide in dorsal view, almost as wide as head;

mesoscutum, about 1.3x as wide as long, with 4-5 rows, sparse, fine, long, pale setae; scutellum 1.2x as long as minimum distance between axillary grooves, scutellum with 3 pair setae laterally, 3 setae basally; metasoma about 2.83-3.2x as long as wide, about 1.6x as long as mesosoma length; last tergite (epipygium) about 1.5x as long as broad; ovipositor sheath 0.33x as long as last tergite.

Description from the specimens of Turkey

Description. Female: Body (Figs. 11a,b) length. 2.3 mm.

Colour. Body dark blue to violet, with metallic greenish reflection, setae on dorsum pale yellow, on lateral areas and metasoma and paired setae laterally black; antenna black, with pale setae; legs almost same colour with body, except tarsi pale yellow, pretarsi testaceous. Wings with venation testaceous, setae pale yellow.

Head (Fig. 11c) in frontal view 1.16-1.2x as wide as high, and 2.28x as wide as length. Face with fine reticulation; antennal scrobe broad, smooth, frontal area finely reticulate, with white sparsely placed, appressed pubescence; lower face faintly concave, with fine white pubescence; clypeal margin entire, mouth narrow, almost 1.5x as wide as malar space. Eye in frontal view about 2.75x as long as width. Malar space about 0.4x eye height, malar sulcus finely developed, genal carina absent. POL 2.25x OOL. Antennae (Fig. 11d) inserted distinctly below centre of face, well above lower ocular line; flagellum with white, dense hairs; antennal formula 11263; scape 4.22-4.33x as long as wide; scape long 0.46x eye height, its tip well below lower edge of anterior ocellus; pedicel (Fig. 11e) in lateral view 1.4-1.5x as long as wide; funicular segments distinctly transverse, almost in same length and distinctly widening towards tip, F1 1.6x; F2 1.9x, F3 2.1x, F4 1.8x, F5 2.5x, F6 3.0x as long as wide, and 1.7x as wide as F1, funicular segments with 4-5 linear sensillae in a row; club 1.5x as wide; C1 1.2x as long as C2; combined length of flagellum 3.2x as long as length of club, and 2.3x as long as scape.

Mesosoma (Figs. 11a,f) in profile distinctly convex dorsally, about 1.6x as long as wide in dorsal view, almost as wide as head; pronotum rounded, with distinct neck and collar, anterior margin of collar not margined, posterior margin finely reticulate, with short pale hairs; mesoscutum (Fig. 11f) with fine reticulation, about 1.3x as wide as long, with 4-5 rows, sparse, fine, long, pale setae; notauli very shallow and incomplete; scutellum (Figs. 11f,g) 1.2x as long as space between sublateral grooves, having fine reticulation, with conspicuous sublateral grooves, axilla with obviously longitudinal carina; frenal area absent, with 2 pairs of long black setae laterally, 2-3 setae basally.

Forewing (Fig. 4h) densely hairy on both sides, 2.2-2.32x as long as wide; a/b 1.92-2.5x; marginal vein 2.8x post marginal vein, and 4.0x stigmal vein; post marginal vein 1.43-1.5x stigmal vein; stigma petiolate, almost as long as wide; costal cell 7.5-9.0x as long as wide, with 1 complete row, and 3-4 complete rows setae in basal and apical areas.

Metasoma (Figs. 11a,b) long, without petiole, about 2.83-3.2x as long as wide, about 1.6x as long as mesosoma length; last tergite (epipygium) about 1.5x as long as broad; ovipositor sheath 0.33x as long as last tergite.

Material studied: Turkey: 1 Fem, Adana, Karataş, 27.iv.2017, leg. M. Doğanlar; Tokat, 1.female, 27.iv.1989; 1 female, 11.v. 1989; 1 female, 18.vi.1989; 1 male, Gümenek, 06.iv.1999; Erzurum, 3 females, Tortum, 26.v.1987; 1 female, İspir, 21.v.1985. All of the specimens were collected by M. Doğanlar, and deposited in Insect Museum of Biological Control Station, Yüreğir, Adana, Turkey (IMBC).

Comments: *Colotrechnus viridis* (Masi) is similar to *Colotrechnus akifkansui* n. sp. in having antenna with club 1.3-1.5x as long as wide; F1 distinctly transverse and combined length of flagellum at most 2.7x as long as club. But it differs from

C. akifkansui n. sp. in having F1 with at least 4 linear sensillae, F2-F6 at least 5-6 linear sensillae; combined length of flagellum 2.1-2.55x as long as club; Scutellum with 2 pairs setae metasoma 2.83-3.2x as long as wide (in *C. akifkansui* n. sp. club at least 1.74x as long as wide; F1 with at most 2 linear sensillae, F2-F6 at most 3-4 linear sensillae; combined length of flagellum at least 2.6x as long as club; metasoma at most 2.6x as long as wide).

***Colotrechnus akifkansui* n. sp.**

(Figs. 12a-f, 4i)

Etymology. The name is derived from the name of Prof. Dr. Akif Kansu who was a Turkish entomologist in the Ankara University.

Diagnosis. F1 with at most 2 linear sensillae, F2-F6 at most 3-4 linear sensillae; club at least 1.74x as long as wide; combined length of flagellum at least 2.6x as long as club; metasoma at most 2.6x as long as wide; combined length of flagellum about 2.03-2.31x as long as scape, 2.6-2.7 as long as club; F1 1.6-2.1x as wide as long; F2-F6 distinctly transverse, slightly widening towards tip, F2 2.0-2.3x as wide as long; F6 1.2-1.5x wider than F2, 2.2-2.4x as wide as long; Club 1.74-1.8x as long as wide; C1 1.4-1.5x as wide as long, 1.25-1.31x as long as C2; Forewing 2.1-2.21x as long as wide; a/b 2.0-2.32x; costal cell 8.0-8.33x as long as wide, with 1 complete row, and at base and apical 2 rows of setae. Head in frontal view 1.1-1.2x as wide as high, and 2.5x as wide as length; POL 2.75x OOL eye in frontal view about 2.4-2.8x as long as width. Malar space about 0.26x eye height; mesosoma about 1.2x as long as wide in dorsal view, almost as wide as head (42:35); mesoscutum about 1.3-1.46x as wide as long, with 4-5 rows, sparse, fine, short, pale setae; scutellum 1.15x as long as minimum distance between axillary grooves, with 3 pair setae laterally; metasoma about 2.6-2.0x as long as wide, about 1.4-1.6x as long as mesosoma length; last tergite (epipygium) about 1.33-1.4x as long as broad; ovipositor sheath 0.3-0.14x as long as last tergite.

Description. Female: Body (Figs. 12a,b) length. 1.32-2.1 mm.

Colour. Body dark blue to violet, with metallic greenish reflection, antenna black; legs almost same colour with body, except tarsi pale yellow, pretarsi testaceous. Wings with venation testaceous, setae pale yellow.

Head (Fig. 12c) in frontal view 1.1-1.2x as wide as high, and 2.5x as wide as length. Face with fine reticulation; antennal scrobe broad, smooth, frontal area finely reticulate, with white sparsely placed, appressed pubescence; lower face faintly concave, with fine white pubescence; clypeal margin entire, mouth narrow, almost 2.0-2.2x as wide as malar space. Eye in frontal view about 2.4-2.8x as long as width. Malar space about 0.26x eye height, malar sulcus finely developed, genal carina absent. POL 2.75x OOL. Antennae (Figs. 12c,d) inserted distinctly below centre of face, well above lower ocular line; flagellum with white, dense hairs; antennal formula 11263; scape 3.9-4.4x as long as wide; long, 0.4-0.5x eye height, its tip well below lower edge of anterior ocellus; pedicel in lateral view 1.6-1.7x as long as wide; funicular segments distinctly transverse, almost in same length and distinctly widening towards tip, F1 2.3x; F2 2.0x, F3 1.8x, F4 2.0x, F5 2.44x as long as wide, F6 2.1-2.5x as long as wide and 1.2x as wide as F1, funicular segments with 4-5 linear sensillae in a row; club 1.8-1.9x as wide; C1 1.25-1.3x as long as C2; combined length of flagellum 2.63-2.74x as long as length of club, and 2.1-2.36x as long as scape.

Mesosoma (Fig. 12e) in profile slightly convex dorsally, scutellum distinctly convex, about 1.2x as long as wide in dorsal view, almost as wide as head; pronotum rounded, with distinct neck and collar, anterior margin of collar not margined, posterior margin finely reticulate, with short pale hairs; mesoscutum

with fine reticulation, about 1.3-1.46x as wide as long, with 4-5 rows, sparse, fine, short, pale setae; notauli very shallow and incomplete; scutellum (Fig. 12e) 1.15x as long as space between sublateral grooves, having fine reticulation, with conspicuous sublateral grooves, axilla with obviously longitudinal carina; frenal area absent, with 3 pairs of long black setae laterally, 2-3 pale, setae basally.

Forewing (Fig. 4i) densely hairy on both sides, 2.1-2.2x as long as wide; a/b 2.0-2.32x; marginal vein 2.3-2.7x post marginal vein, and 3.6-3.8x stigmal vein; post marginal vein 1.4-1.6x stigmal vein; stigma petiolate, almost 1.3-1.6x as long as wide; costal cell 7.9-8.33x as long as wide, with 1 complete row, and 2 rows setae in basal and apical areas (Fig. 11).

Metasoma (Figs. 12a,b) long, without petiole, about 2.6-2.0x as long as wide, about 1.4-1.6x as long as mesosoma length; last tergite (epipygium) (Fig. 12f) about 1.33-1.4x as long as broad; ovipositor sheath 0.3-0.14x as long as last tergite.

Material studied: Turkey: Holotype Fem, Gaziantep, Oğuzeli, Keçikuyusu, 27.iv.2017, leg. M. Doğanlar, Paratype. Ağrı, Taşlıçay, 04.vii.2010, leg. M. Doğanlar, antennae and forewings of types were slide mounted in Canada Balsam, and the types were deposited in Insect Museum of Biological Control Station, Yüreğir, Adana, Turkey (IMBC).

Comments: *Colotrechnus akifkansui* n. sp. is similar to *Colotrechnus viridis* (Masi). The species were discussed before.

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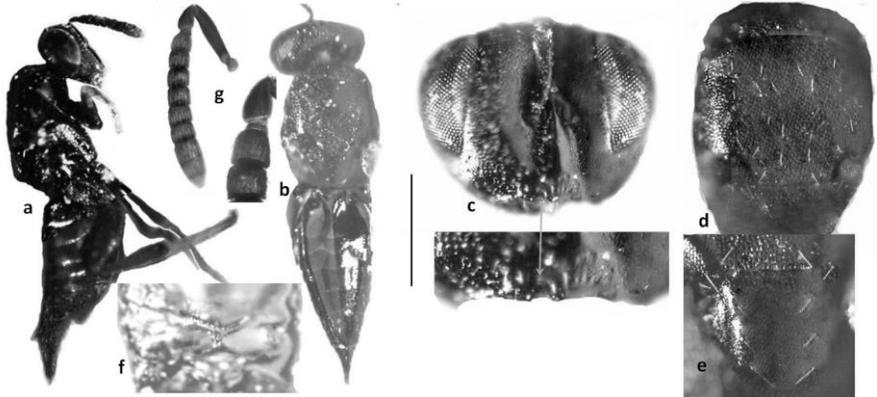


Figure 1. *Colotrechnus karatasensis* n. sp. a-c. female. a.- b. body, a. in lateral view, b. in dorsal view; c. head, in frontal view; d. mesosoma, in dorsal view; e. scutellum; f. propodeum; g. female antenna. (Scale bar for a, b= 0.64 mm; for c= 0.27 mm; for d, g= 0.30 mm; for e= 0.19 mm; for f= 12 mm).

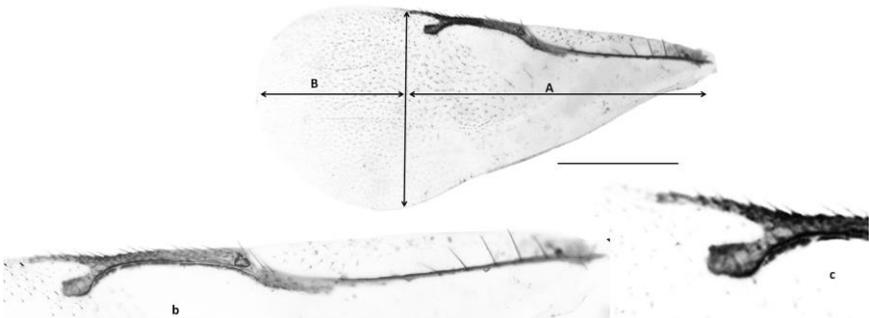


Figure 2. *Colotrechnus karatasensis* n. sp. a-c. female. a. Forewing; b. costal cell, and veins; c. stigmal and postmarginal veins (Scale bar for a= 0.38 mm; for b= 0.18 mm; for c= 0.12 mm).

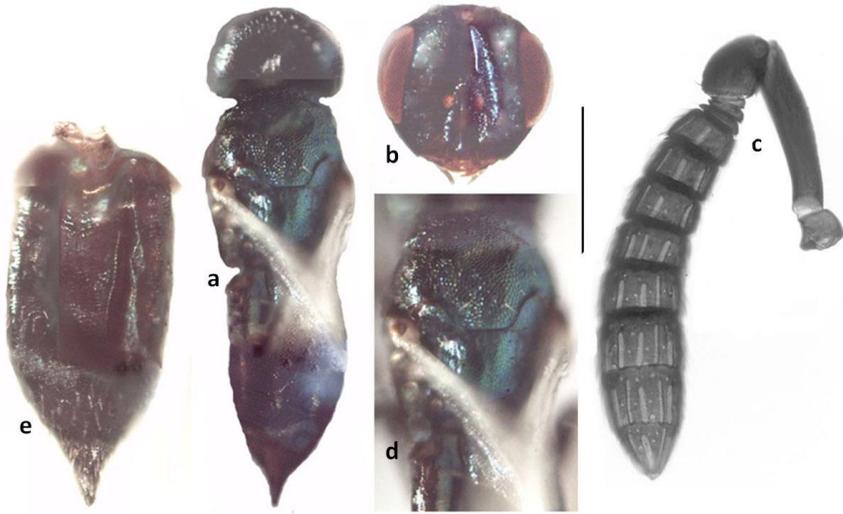


Figure 3. *Colotrechnus bekiralkani* n. sp. female. a. body, in dorsal view; b. head, in frontal view; c. antenna; d. mesosoma, in dorsal view; e. metasoma, in dorsal view. (Scale bar for a= 0.38 mm; for b, d= 0.31 mm; for c= 0.10 mm; for e= 0.24 mm).

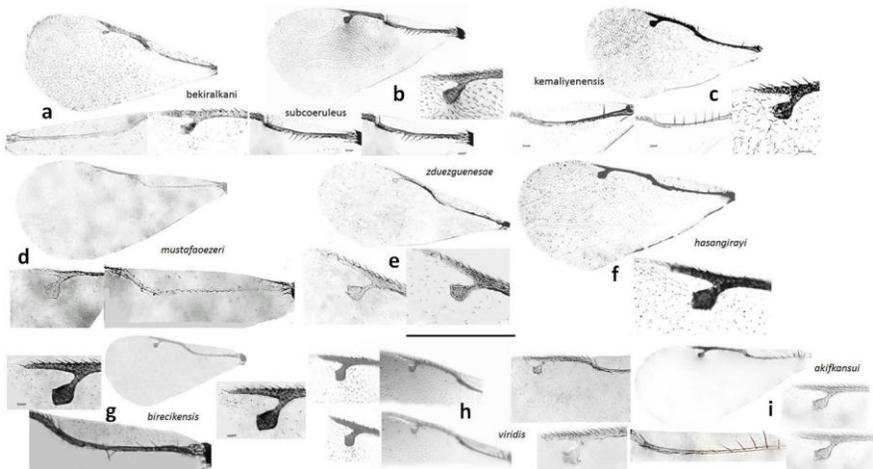


Figure 4. *Colotrechnus* spp. female. Forewings. a. *bekiralkani* n. sp.; b. *subcoeruleus* Thomson; c. *kemaliyenensis* n. sp.; d. *mustafaoezeri* n. sp.; e. *zduzguenesae* n. sp.; f. *hasangirayi* n. sp.; g. *birecikensis* n. sp.; h. *viridis* (Masi); i. *akifkansui* n. sp. (Scale bar for a= 0.6 mm; for b, e, h= 0.95 mm; for c= 0.73 mm; for d= 0.44 mm; for f= 0.34 mm; for g= 0.50 mm; for i= 0.62 mm).

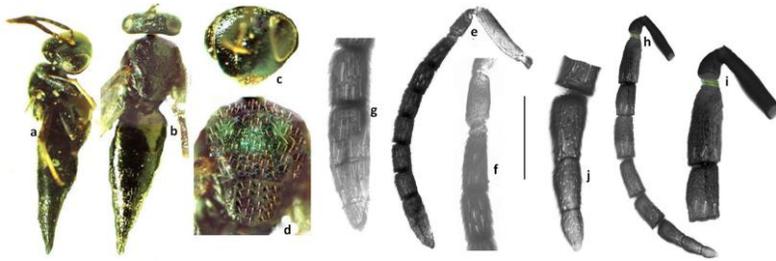


Figure 5. *Colotrechnus subcoeruleus* Thomson. female. a.-b. body, a. in lateral view, b. in dorsal view; c. head, in frontal view; d. mesosoma, in dorsal view; e. Forewing; f.-g. costal cell, f. lower side, g. upper side; h. stigmal and postmarginal veins (Scale bar for a= 0.50 mm; for b= 0.56 mm; for c= 0.48 mm; for d= 0.32 mm; for e, h= 0.24 mm; for f, g= 0.13 mm; for i, j= 0.10 mm).

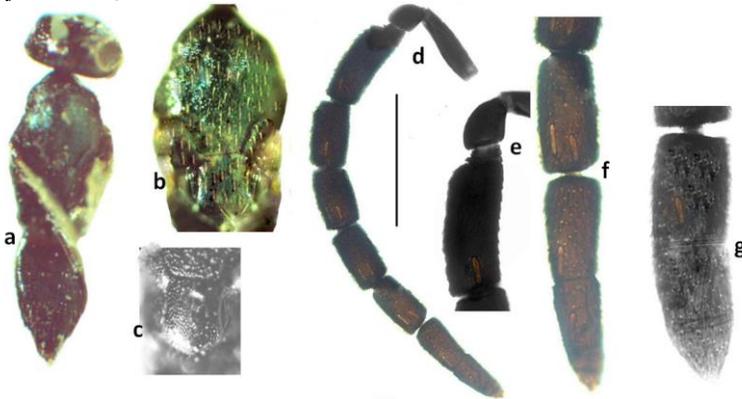


Figure 7. *Colotrechnus kemaliyenensis* n. sp. male. a. body, in dorsal view; b. mesosoma, in dorsal view; c. scutellum; d. antenna; e. basal segments of flagellum; f. F5 and club (right antenna); g. club (left antenna). (Scale bar for a=0.56 mm; for b=0.37 mm; for c=0.42 mm; for d=0.25 mm; for e=0.42 mm; for f=0.50 mm; for g=0.58 mm).



Figure 7. *Colotrechnus mustafaoezeri* n. sp. female. a.-c. body. a. in lateral view; b. in dorsal view; c. in dorso-lateral view; d. head, in frontal view; e. mesosoma, in dorsal view; f. scutellum, in dorso-lateral view; g. antenna; h. basal segments of antenna; i. apical segments of flagellum. (Scale bar for a-c= 0.47 mm; for d= 0.35 mm; for e, f= 0.24 mm; for g= 0.12 mm; for h, i= 0.06 mm).

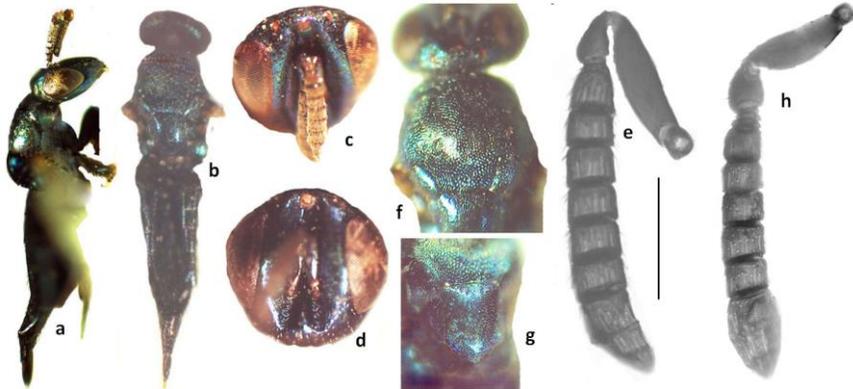


Figure 8. *Colotrechnus zduetzguenesae* n. sp. a-g. female. a-b. body, a. lateral view, b. dorsal view; c-d. head, fronto-dorsal view, d. frontal view; e. antenna; f. part of mesosoma; g. scutellum. h. male antenna. (Scale bar for a, b= 0.82 mm; for c, d= 0.41 mm; for e, h= 0.13 mm; for f, g= 0.41 mm).

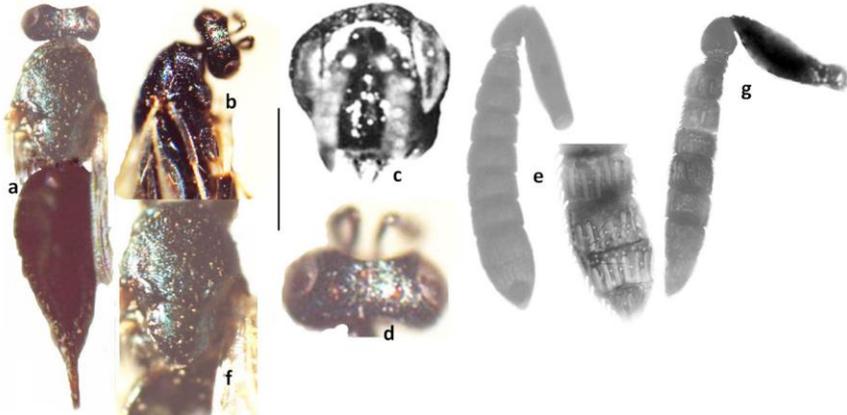


Figure 9. *Colotrechnus hasangirayi* n. sp. female. a. body, in dorsal view, b. head and mesosoma, in lateral view; c-d. head, c. in frontal view, d. in dorsal view; e. antenna and club; f. mesosoma; g. male antenna. (Scale bar for a, b= 0.75 mm; for c, d= 0.36 mm; for e, g= 0.12 mm; for f= 0.60 mm).

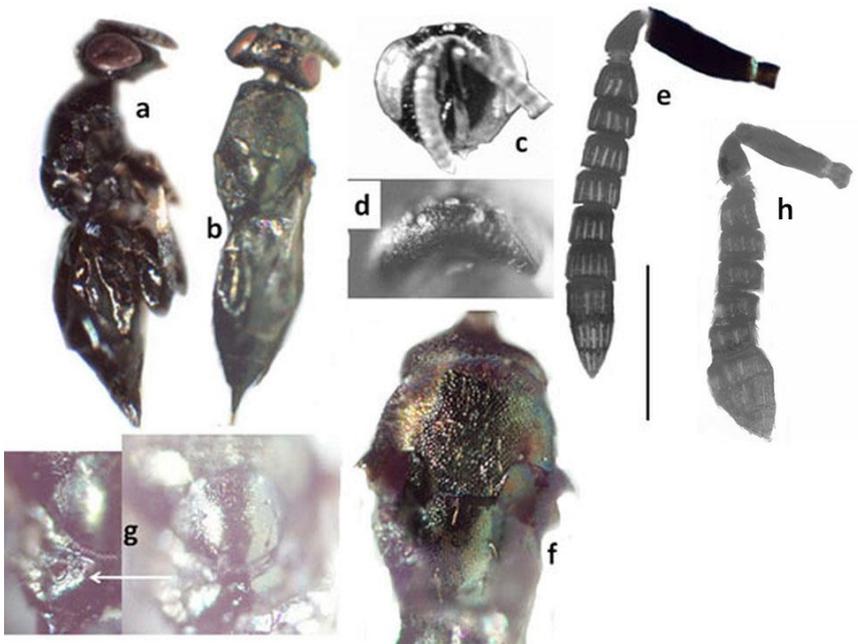


Figure 10. *Colotrechnus birecikensis* n. sp. female. a-b. body, a. lateral view, b. dorsal view; c-d. head, c. frontal view, d. dorsal view; e. antenna; f. mesosoma; g. scutellum and propodeum; h. male antenna. (Scale bar for a, b= 0.91 mm; for c, d= 0.55 mm; for e, h= 0.21 mm; for f, g= 0.44 mm).

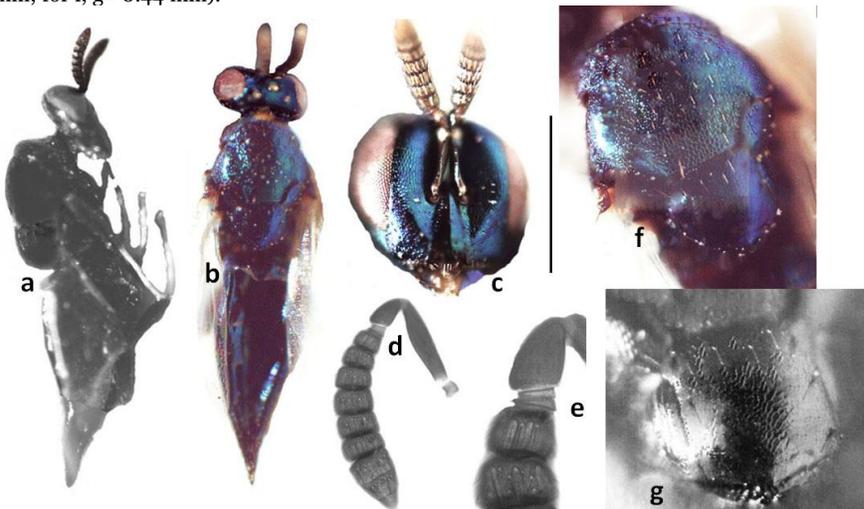


Figure 11. *Colotrechnus viridis* (Masi, 1921) female. a-b. body, a. lateral view, b. dorsal view; c. head, in frontal view, d. antenna; e. basal segments of flagellum; f. mesosoma; g. scutellum. (Scale bar for a, b= 0.87 mm; for c= 0.47 mm; for d= 0.26 mm; for f= 0.45 mm; for g= 0.23 mm).

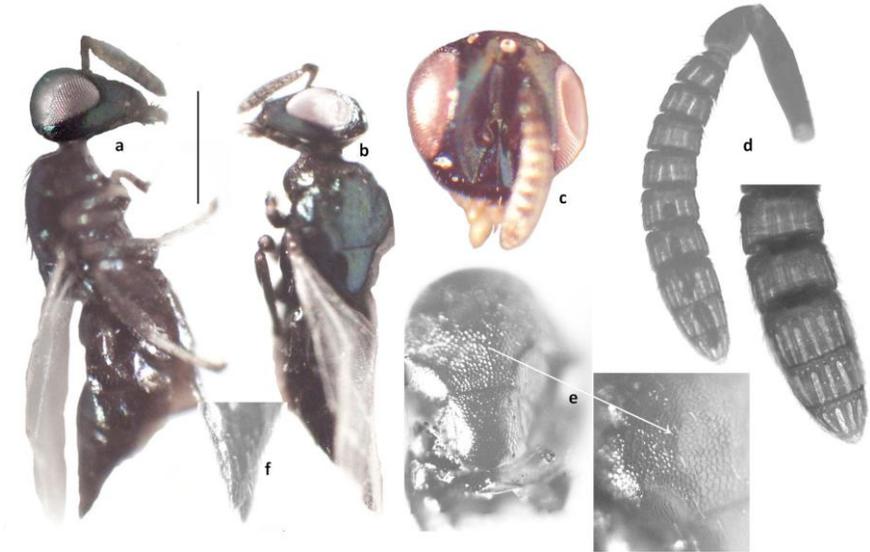


Figure 12. *Colotrechnus akifkansui* n. sp. female. a-b. body, a. lateral view, b. dorso-lateral view; c. head frontal view, d. antenna; e. mesosoma; f. tip of metasoma. (Scale bar for a, b= 0.35 mm; for c= 0.23 mm; for d= 0.10 mm; for e= 0.24 mm).