



<http://dx.doi.org/10.11646/zootaxa.4040.4.6>

<http://zoobank.org/urn:lsid:zoobank.org:pub:1FA9F352-C18B-40E9-9D54-1CFE2B6F2ADC>

## Contribution to the genus *Chrysidea* Bischoff, 1913 from China, with description of a new species (Hymenoptera, Chrysididae)

PAOLO ROSA<sup>1</sup> & ZAI-FU XU<sup>2,3</sup>

<sup>1</sup>Via Belvedere 8/d, I-20881 Bernareggio (MB), Italy. E-mail: [rosa@chrysis.net](mailto:rosa@chrysis.net)

<sup>2</sup>Department of Entomology, South China Agricultural University, Guangzhou 510640, China. E-mail: [xuzai fu@scau.edu.cn](mailto:xuzai fu@scau.edu.cn)

<sup>3</sup>Corresponding author. E-mail: [xuzai fu@scau.edu.cn](mailto:xuzai fu@scau.edu.cn)

The genus *Chrysidea* Bischoff, 1913 belongs to the tribe Chrysidini (Hymenoptera, Chrysididae). Bohart (1988) revalidated the genus after it was considered as subgenus of *Chrysis* Linnaeus, 1761 (Linsenmaier 1959) or *Trichrysis* Lichtenstein, 1876 (Kimsey & Bohart 1981) and synonymised it with *Chrysis* (*Trichrysis*) (Linsenmaier 1984). Kimsey & Bohart (1991) gave a checklist of 19 known species of *Chrysidea*, of which three are known from the Oriental Region, *C. bidenticulata* (Mocsáry, 1913), *C. furiosa* (Cameron, 1897) and *C. monticellii* (du Buysson, 1906). Only one species, *C. pumila* (Klug, 1845), has been recorded for the Palearctic part of China (Hammer 1936; Rosa *et al.* 2014).

At first sight, *Chrysidea falsa* sp. nov. could be identified as *Trichrysis* for fore wing discoidal cell complete, apex of T3 with three sharp teeth, and interval between median tooth and lateral tooth distinctly convex. Nevertheless, TFC topping scapal basin, pronotal shape and S2 black spots distinctly separate it from the species in the genus *Trichrysis*, and place it in the genus *Chrysidea*. This peculiar shape of T3 of *C. falsa* sp. nov. can be clearly separated it from all the other Oriental known species of *Chrysidea*, which show only two lateral teeth on apex of T3.

### Material and methods

All specimens were examined and described under stereomicroscope (Leica MZ125). Photographs were taken with a digital camera (CoolSNAP) attached to a Zeiss Stemi 2000-CS stereomicroscope. Images were processed using Image-Pro Plus software.

Morphological terminology follows that of Kimsey & Bohart (1991). Abbreviations used in the descriptions as follows: **BOL**= brow-ocellar line, the shortest distance between the mid ocellus and the **TFC**; **F1**, **F2**, **F3**, etc. = flagellomeres 1, 2, 3, etc.; **l/w** = length/ width; **MOD** = mid ocellar diameter; **MS** = malar space, the shortest distance between the base of mandible and the margin of compound eye; **OOL**= oculo-ocellar line, the shortest distance between the lateral ocellus and the compound eye; **P** = pedicel; **PD** = puncture diameter; **POL** = the shortest distance between posterior ocelli; **S2** = metasomal sternum 2; **TFC** = transverse frontal carina; **T1**, **T2**, **T3** = metasomal tergites 1, 2, 3.

Types and other specimens have been examined from the following institutions: NMLS–NaturMuseum Luzern, Switzerland; SCAU–Hymenopteran Collection, South China Agricultural University, Guangzhou, China.

### Genus *Chrysidea* Bischoff, 1913

*Chrysidea* Bischoff, 1913: 34. Type species: *Chrysis pumila* Klug, 1845, by original designation.

*Chrysis* (*Chrysidea*) Linnaeus, 1761: Linsenmaier 1959: 170; Linsenmaier 1984: 196 (synonym of *Chrysis* (*Trichrysis*)).

*Trichrysis* (*Chrysidea*) Lichtenstein, 1876: Kimsey & Bohart 1981: 77.

*Chrysidea* Bischoff: Bohart 1988: 129; Kimsey & Bohart 1991: 310; Rosa *et al.* 2014: 38.

**Diagnosis.** Head broader than high. Scapal basin hollowed, striate or microridged, topped by convex TFC, sometimes with a second upper TFC; F1 longer than F2 or F3, usually less than twice breadth; MS subequal or shorter than 1 MOD; pronotum with weak median groove and without sublateral carina; mesopleuron with episternal and scrobal sulci, omaulus and verticulus; metanotum rounded, rarely projected posteriorly; fore wing discoidal cell usually with outer veins faint; T3 usually with only two lateral teeth, sometimes with one median tooth; S2 black spots oval or round, usually separated by 1–2 MOD. Genital capsule with gonocoxa notched apically, thus appearing bilobate.

**Biology.** *Chrysidea* are known as hosts of sphecoid and crabronid wasps (Zimmermann 1961; Kimsey & Bohart 1991).

**Distribution.** There are 19 valid species of *Chrysidea* distributed in the Palaearctic, Afrotropical and Oriental Regions. *Chrysidea pumila* (Klug, 1845) is widespread in the Afrotropical and Palaearctic Regions; in the Palaearctic Region other two species are known; three in the Oriental Region; and thirteen in the Afrotropical Region, Malagasy Subregion.

**Discussion.** Green to blue chrysidids, with some bright colour species in the Afrotropical Region. *Chrysidea Bischoff* is close to *Trichrysis* Lichtenstein, nevertheless species are usually recognizable for combination of the following characteristics: TFC topping scapal basin (separated from scapal basin in *Trichrysis*), fore wing discoidal cell usually incomplete, with outer veins indistinct or faint (complete and sclerotised in *Trichrysis*), pronotum without sublateral carina (usually with sublateral carinae in *Trichrysis*), with only two lateral teeth on apex of T3, rarely with three teeth (three or five teeth in *Trichrysis*); S2 black spots distinctly separated by 1–2 MOD (fused medially or nearly so in *Trichrysis*).

### ***Chrysidea falsa* Rosa & Xu, sp. nov. (Figs 1A–1F)**

**Material examined.** Holotype: ♀, CHINA: Yunnan, Jingdong, Wenjing Town (24°18'9"N 100°55'53"E) 29.IV.2005, H-s. Wang (SCAU). Paratypes: 1♀, same data as holotype (SCAU); 1♀, Yunnan, Yingjiang, Taiping Village (24°39'29"N 97°51'9"E), 15.VIII.2005, Q. Li (SCAU); 1♀, Yunnan, Jingdong, Jinping Town (24°27'14"N 100°50'4"E), 28.IV.2005, H-s. Wang (SCAU). MALAYSIA: 1 ♀, Malaya, Coll. Linsenmaier, Type ♀ *Chrysis* L. *Trichrysis laticoela* det. Linsenmaier 1991, NO TYPE sp. in litteris P. Rosa det. 2010 GBIF-Chrysididae, ex-synoptic collection, NML\_ENT GBIF\_Chry 00041040 (NMLS). PHILIPPINES: 1♀, S Mindanao, Zamboanga, 12.[19]12, Böttcher, Type ♀ *Chrysis* L. *Trichrysis simplicicollis* Linsenmaier det. 1959, NO TYPE sp. in litteris P. Rosa det. 2010 GBIF-Chrysididae, ex-synoptic collection, NML\_ENT GBIF\_Chry 00041046 (NMLS).

**Diagnosis.** *Chrysidea falsa* sp. nov. is the only known Oriental species with three distinct teeth on apex of T3 and convex interval between median tooth and lateral tooth. So far only two Malagasy species in this genus have apex of T3 with three teeth, *C. dido* Zimmerann, 1956 and *C. phoebe* Zimmermann, 1956 (Kimsey & Bohart 1991); but *Chrysidea falsa* sp. nov. can be separated from them by fully sclerotised outer veins of fore wings.

**Description.** *Female.* Body length 5.0–6.2 mm.

*Head.* Scapal basin deep, punctate and medially wrinkled (Fig. 1B). TFC distinct, single, topping upper part of scapal basin, and descending along eye margin. Relative length of P:F1:F2:F3 = 1.0:1.0–1.1:0.7:0.6; F1 l/w = 2, OOL = 1.8–2.0 MOD; BOL = 2.4–3.0 MOD; POL = 2.0–2.5 MOD; MS = 1 MOD; clypeus slightly concave.

*Mesosoma.* Pronotal groove deep, extending to 3/4 length of pronotum. Sublateral carina faint (Fig. 1C). Metanotum with deep antero-median pit (Fig. 1C). Punctuation on mesosoma with deep and large punctures; largest punctures on mesoscutum with diameter of mid ocellus; mesoscutellum antero-medially with black triangular area with small and shallow punctures, and large smooth interspaces. Mesopleuron with episternal sulcus formed by large and deep foveae, scrobal sulcus formed by large transversal areolate punctures. Metanotum slightly projected posteriorly.

*Metasoma.* Punctuation small, dense, uniform, and with subequal interstices; punctures considerably smaller than those on mesosoma (0.3–0.4 PD) (Fig. 1D); larger punctures and narrow interstices laterally. T1 with pair of submedian humps at front of dorsal area (Fig. 1D); T2 with geminate punctures and with faint median carina. T3 pre pit row area not bulged; pit row distinct, with small and deep and pits occasionally fused each other (Fig. 1E). Apex of T3 with three short apical teeth; interval between median tooth and lateral tooth convex. S2 black spots oval and medially separated by at least 1 MOD (Fig. 1F).

*Colouration.* Face metallic green. Vertex and mesosoma metallic bluish-green. Antenna blackish, with scape, pedicel and F1 metallic bluish-green. Tegula metallic bluish-green. Legs metallic bluish-green, with tarsi brownish. Metasomal terga metallic bluish-green, with lighter greenish to golden reflections laterally and posteriorly.

*Male.* Unknown.

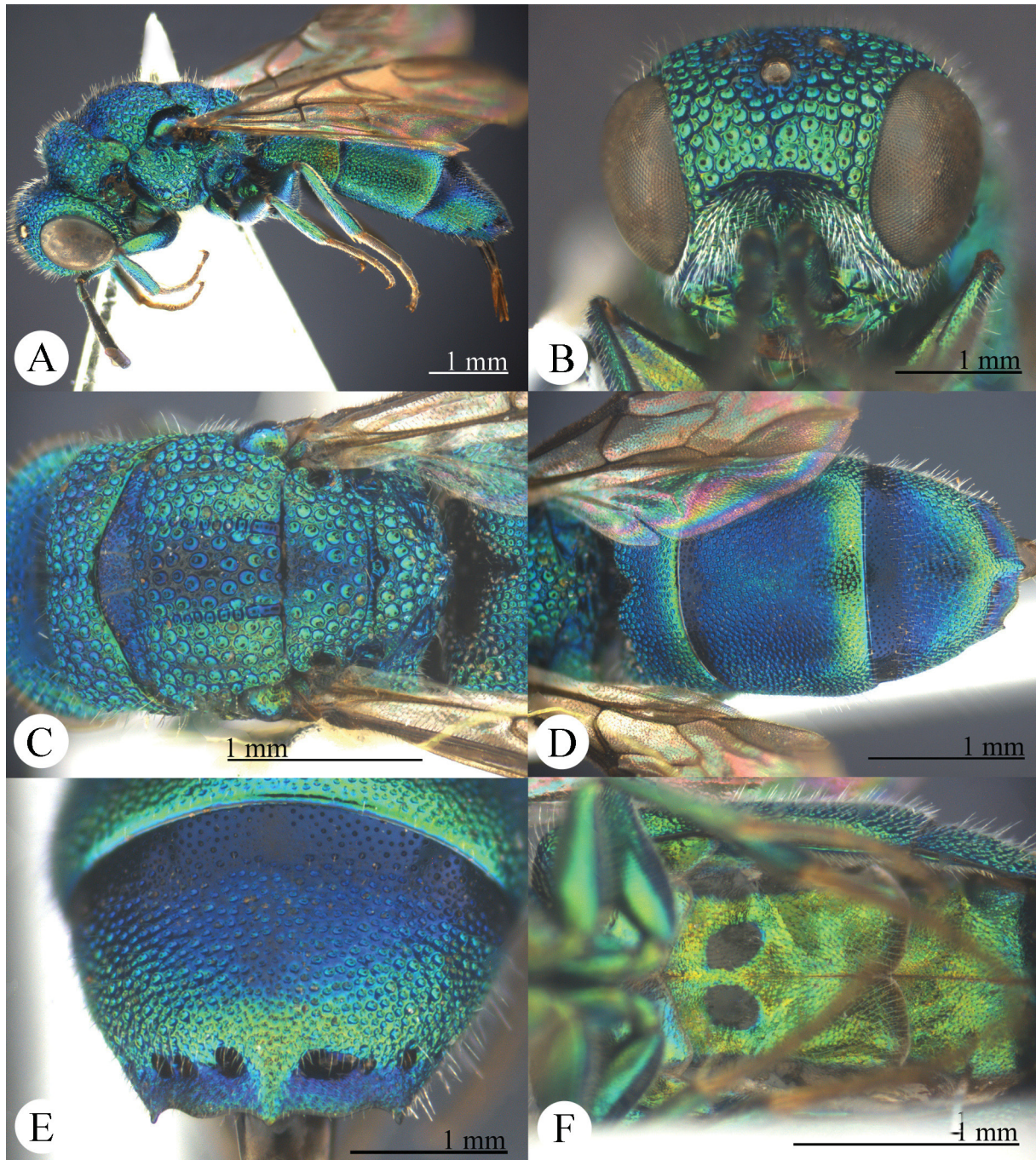
**Biology.** Unknown.

**Distribution.** China (Yunnan), Malaysia (Malaya), Philippines (Mindanao).

**Remarks.** In Linsenmaier's collection in NMLS there are two specimens labelled as holotypes of *Chrysis* (*Trichrysis*) *laticoela* Linsenmaier and *C. (T.) simplicicollis* Linsenmaier. The descriptions of these species were never published (Rosa *et al.* 2015). They share the main diagnostic characteristics of *C. falsa* sp. nov. even if their colouration is more green or greenish-blue and one specimen is smaller compared to the other specimens.

**Etymology.** The specific name is derived by Latin adjective *falsa* (= deceptive, misleading), for wing venation and shape of T3 similar to those of *Trichrysis* Lichtenstein.





**FIGURE 1.** *Chrysidea falsa* sp. nov., ♀, holotype. **A.** Habitus, lateral view; **B.** Head, frontal view; **C.** Pronotum, mesoscutum, mesoscutellum and metanotum, dorsal view; **D.** Metasoma, dorsal view; **E.** T3, dorsal view; **F.** Metasoma, ventral view.

***Chrysidea pumila* (Klug, 1845)**

*Chrysis pumila* Klug, 1845: tab. 45, fig. 13. Neotype, ♂, designation by Rosa & Xu (2015: 10); Egypt: Fayoum (Luzern).

*Chrysidea pumila* Bischoff 1913: 34; Hammer 1936: 3 (China [Xinjiang]: Urumchi [= Urumqi]); Kimsey & Bohart 1991: 314.

**Material examined.** 2♀♀, Harare: Ketmen, Thian Chan [=Tian-Shan] Occid. Monts Sussamyr Ketmen Tjube M. Pic. 1914. The specimens were collected close to the Kyrgyzstan border (Sussamyr Mt.) (NMLS) (Rosa *et al.* 2014).

**Diagnosis.** *Chrysidea pumila* can be easily separated from *C. falsa* sp. nov. by fore wing with indistinct outer veins of discoidal cell (fully sclerotised in *C. falsa*) and apex of T3 with two lateral teeth and apico-medial undulation (with three sharp teeth and convex intervals between teeth in *C. falsa*).

**Biology.** Unknown.

**Distribution.** China (Xinjiang). Widely distributed in the Afrotropical and South Palaearctic Region (Kimsey & Bohart 1991). It is not yet known from the Oriental Region.

**Acknowledgments.** We are grateful to Dr. Marco Bernasconi (NMLS, Switzerland) for his cooperation and assistance in the study of the Linsenmaier collection. We wish to thank Jun Fung (Guangzhou, China), who provided the pictures of *C. falsa* sp. nov. We are also very grateful to Arkady Lelej (Russia) and two anonymous reviewers for their kind suggestions to improve the manuscript. The study was partially supported by the National Basic Research Program of China (No. 2013CB127600) and the National Natural Science Foundation of China (30770265).

## References

- Bischoff, H. (1913) *Hymenoptera. Fam. Chrysididae*. In: Wytzman, P. (Ed.), *Genera insectorum. Fascicule 151*. L. Desmet-Verteneuil, Bruxelles, pp. 1–86 pp. + pls. 1–5.
- Bohart, R.M. (1988) New species of *Chrysidea* and a key to the Madagascan species. *Journal of the Entomological Society of South Africa*, 51 (1), 129–137.
- Buysson, R. du (1906 ["1905"]) Note Hyménoptérologique. *Annuario del Museo Zoologico della Regia Università di Napoli*, New Series, 2 (2), 1–2.
- Cameron, P. (1897) Hymenoptera orientalia, or contributions to the knowledge of the Hymenoptera of the Oriental Zoological Region. VI. *Memoirs and proceedings of the Manchester Literary and Philosophical Society*, 41, 1–27.
- Hammer, K. (1936 ["1934"]) Schwedisch-chinesische wissenschaftliche Expedition nach den nordwestlichen Provinzen Chinas. 43 Hymenoptera. 8. Scoliiden, Mutilliden u. Chrysididen. *Arkiv för Zoologi*, 27A (23), 1–12.
- Kimsey, L.S. & Bohart, R.M. (1981 ["1980"]) A synopsis of the chrysidid genera of neotropical America. *Psyche*, 87, 75–91.
- Kimsey, L.S. & Bohart, R.M. (1991 ["1990"]) *The Chrysidid Wasps of the World*. Oxford University Press, New York, 652 pp.
- Klug, J.C.F. (1845) *Symbolae Physicae seu Icones et Descriptiones Insectorum quae ex Itinere per Africam borealem et Asiam occidentalem Friderici Guilelmi Hemprich et Christiani Godofredi Ehrenberg Medicinae et Chirurgiae Doctorum studio novae aut illustratae redierunt. Decas Quinta*. Officina Academica, Berolini, 41 unnumbered pages + pls. 41–50.
- Lichtenstein, J. (1876) Note sur le genre *Chrysis*. *Petites Nouvelles Entomologiques*, 145, 27.
- Linnaeus, C. (1761) *Fauna Suecia sistens Animalia Sueciae Regni: Mammalia, Aves, Amphibia, Pisces, Insecta, Vermes. Distributa per Classes et Ordines, enera et Species, cum Differentiis, Specierum, Synonymis, Auctorum, Nominibus Incolarum, Locis natalium, Descriptionibus Insectorum. Editio Altera, Auctior*. Laurentius Salvius, Stockholm, 578 pp. + 2 pls.
- Linsenmaier, W. (1959) Revision der Familie Chrysididae (Hymenoptera) mit besonderer Berücksichtigung der europäischen Spezies. *Mitteilungen der Schweizerischen Entomologischen Gesellschaft*, 32 (1), 1–232.
- Linsenmaier, W. (1984) Das Subgenus *Trichrysis* Lichtenstein in Nord und Südamerika (Hym., Chrysididae, Genus *Chrysis* L.). *Mitteilungen der Schweizerischen Entomologischen Gesellschaft*, 57, 195–224.
- Mocsáry, A. (1913) The Chrysididae of the Philippine Islands. *Philippine Journal of Science*, 8 (D), 287–291.
- Rosa, P. & Xu, X-F. (2015) Annotated type catalogue of the Chrysididae (Insecta, Hymenoptera) deposited in the collection of Maximilian Spinola (1780–1857), Turin. *ZooKeys*, 471, 1–96.  
<http://dx.doi.org/10.3897/zookeys.471.6558>
- Rosa, P., Bernasconi, M.V. & Wyniger, D. (2015) The Linsenmaier Chrysididae collection housed in the Natur-Museum Luzern (Switzerland) and the main results of the related GBIF Hymenoptera Project (Insecta). *Zootaxa*, 3986 (5), 501–548.  
<http://dx.doi.org/10.11646/zootaxa.3986.5.1>
- Rosa, P., Wei, N.-S. & Xu, Z.-F. (2014) An annotated checklist of the chrysidid wasps (Hymenoptera, Chrysididae) from China. *ZooKeys*, 455, 1–128.  
<http://dx.doi.org/10.3897/zookeys.455.6557>
- Zimmermann, S. (1956) Contribution a l'etude des Chrysidides de Madagascar (Hymenoptera). *Mémoires de l'Institut Scientifique de Madagascar*, Serie E, 7, 141–165.
- Zimmermann, S. (1961) Zweiter Beitrag zur Kenntnis der Chrysididen Madagascars (Hymenoptera). *Mémoires de l'Institut Scientifique de Madagascar*, Serie E, 12, 297–321.