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A new species of the genus *Pseudocyanopterus* van Achterberg, Cao & Yang (Hymenoptera, Braconidae, Braconinae) from China

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Abstract

A new species, *Pseudocyanopterus pagiophloeusis* Samartsev & Li, **sp. nov.**, is described from Shanghai, China. Illustrated diagnoses to distinguish the new species from its closest relative and the members of related genera are presented. New combinations are proposed for five species previously considered in the genus *Cyanopterus* Haliday, 1835, *Bracomorpha hinoemataensis* (Belokobylskij, 2000), **comb. nov.**, *B. kusarensis* (Abdinbekova, 1973), **comb. nov.**, *B. praecinctus* (Shestakov, 1936), **comb. nov.**, *Parallobracon oriens* (Belokobylskij, 2000), **comb. nov.**, and *P. tzymbali* (Belokobylskij, 2000), **comb. nov.**

Keywords

Cinnamomum camphora, *Pagiophloeus tsushimanus*, parasitoid, taxonomy

Introduction

In recent decades, China has undergone major forest management reforms (Ji et al. 2011), which significantly slowed down forest loss (Ahrends et al. 2017). Modern forestry programs turn to new forest management methods particularly directed on

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prevention and natural control of pests (Ji et al. 2011). Studying entomophages (e.g. parasitoid wasps) is required for the development of ecologically sustainable measures of dangerous pest control in China (Wang et al. 2019).

One of the forest pests recently attracted attention in China is *Pagiophloeus tsushimanus* Morimoto, a monophagous curculionid beetle that causes serious damage to the camphor tree *Cinnamomum camphora* (L.) J. Presl (Zhang et al. 2017; Chen et al. 2020). The knowledge on biology and ecological relations of this pest will provide guidance for its managing (Chen et al. 2020). The current article reports the discovery of a new parasitoid species attacking *P. tsushimanus*.

The new species belongs to the recently described genus *Pseudocyanopterus* of the subfamily Braconinae Nees. It belongs to a broad group of genera comprising in China also *Bracomorpha* Papp, *Campyloneurus* Szépligeti, *Cyanopterus* Haliday, *Indabracon* van Achterberg, and *Parallobracon* Li, van Achterberg & Chen. The fauna of these genera in China was actively studied in recent years, when 25 out of 31 currently known Chinese species have been described (Li et al. 2017, 2020a, 2020b, 2021; Cao et al. 2020). Morphological peculiarity of the new taxa considerably complicated the classification of the group of genera. For example, some species of *Campyloneurus* have extraordinarily broadened and lacking dorsal nodus apex of ovipositor (Li et al. 2020c), *Parallobracon* has unusual ovipositor length, and *Pseudocyanopterus* is characterised by an exceptional shape of scape. We expect that the fauna of the genera related to *Pseudocyanopterus* is far from being fully discovered in China and further findings would help to clarify the statuses of questionable taxa. Thus, the revealing diversity of the braconine wasps of China provides not only an important information for forest pest forecasting and control, but also a useful material for elaboration of the systematics of this subfamily.

Material and methods

The insects were dissected from the trunks of *Cinnamomum camphora* (L.) J. Presl (Lauraceae) (Fig. 1A). Parasitized hosts (4th instar larvae of *P. tsushimanus*) were obtained from Maogang, Songjiang District, Shanghai, on 12 June 2018 (14 host larvae) and 24 June 2021 (two host larvae). There were usually four parasitoids per host (Fig. 1B, C). Larvae were brought to the laboratory and maintained in an incubator at the temperature 26±1 °C and relative humidity 60±5%. The emerged insects collected daily. The host was identified by Dr. Jun-Hao Huang (Zhengjiang A & F University, Hangzhou, Zhejiang).

Description, measurements and photographs of the new species were made under a Leica M205A stereomicroscope with a Leica Microsystem DFC550 digital camera. Photographs were combined using Leica Application Suite (Version 4.5.0). Type specimens are deposited in the Insect Museum, General Station of Forest and Grassland Pest Management, National Forestry and Grassland Administration (Shenyang, P. R. China).

Morphological nomenclature follows Quicke (1987) and van Achterberg (1993). The length of fifth segment of hind tarsus is measured without its pretarsus; first metasomal tergite is measured from its articulating condyle [term applied after Vilhelmsen et al. (2010)].

Abbreviations of morphological terms

OD maximum diameter of lateral ocellus;
OOL ocular-ocellar distance;
POL postocellar distance.

Collection acronyms for specimen deposition

GSFGPM General Station of Forest and Grassland Pest Management, National Forestry and Grassland Administration (Shenyang, P. R. China);
HNHM Hungarian Natural History Museum (Budapest, Hungary);
MIIZ Museum and Institute of Zoology, Polish Academy of Sciences (Warszawa, Poland);
NIBR National Institute of Biological Resources (Incheon, South Korea);
SMNE Science Museum of Natural Enemies (Geochang, South Korea);
ZISP Zoological Institute of the Russian Academy of Sciences (Saint Petersburg, Russia).

Material of related taxa used in diagnoses and illustrations

Bracomorpha hinoemataensis (Belokobylskij, 2000), comb. nov. Japan • 1 ♀ (paratype); Fukushima Prefecture, Hinoemata; 16–18 Aug. 1999; S.A. Belokobylskij leg.; ZISP.

Bracomorpha kusarensis (Abdinbekova, 1973), comb. nov. Belarus • 1 ♀; Khoyniki; 29 Jun. – 5 Oct. 1994; A.M. Tereshkin leg.; Malaise trap; ZISP. – Russia • 1 ♀; Krasnodar Territory, Sochi, Lazarevskoye; 14 May 1973; V.I. Tobias leg.; terrace slopes, forest; ZISP.

Bracomorpha praecinctus (Shestakov, 1936), comb. nov. Russia • 1 ♀; Primorskiy Territory, Yakovlevka, 7 Jun. 1926; Dyakonov & Filipiev leg.; ZISP • 1 ♀; Sakhalin Province, Kunashir Island, near Alekhino; 31 Aug. 1962; Krivolutskaya leg.; from galleries of *Xylosandrus germanus* (Blandford, 1894) (Curculionidae) in ash tree; ZISP.

Bracomorpha tricolor (Ivanov, 1896). Russia • 1 ♀; Primorskiy Territory, 30 km S of Slavyanka; 3 Aug. 1985; S.A. Belokobylskij leg.; oak forest, hazel grove; ZISP • 1 ♀; Primorskiy Territory, Spassk-Dalny; 17–21 Jun. 1996; S.A. Belokobylskij leg.; shrubs, forest; ZISP • 1 ♀; Primorskiy Territory, Tarasovka; 24 Jul. 1972; L. Kulikova leg.; flowers, soybean, wheat; ZISP.

Campyloneurus abnormis (Belokobylskij, 2000). Russia • 1 ♀ (holotype); Primorskiy Territory, 20 km SE of Ussuriysk; 4 Aug. 1991; S.A. Belokobylskij leg.; forest,

Figure 1. The larva of *Pagiophloeus tsushimanus* Morimoto, 1982 dissected from the trunks of *Cinnamomum camphora* (L.) J. Presl (**A**) and parasitised by *Pseudocyanopterus pagiophloeusis* sp. nov. (**B, C**).

clearings; ZISP • 1 ♂; Primorskiy Territory, Evseevka, 25 km SE of Spassk-Dalny; 23 Jul. 2013; S.A. Belokobylskij leg.; forest; ZISP.

Campyloneurus angulosus (Enderlein, 1920). Indonesia • 1 ♀ (lectotype); Sumatra, "Soekaranda"; H. Dohrn leg.; MIIZ.

Campyloneurus bicolor Szépligeti,1900. Papua New Guinea • 1 ♀ (lectotype); Astrolabe Bay; S. Fenichel leg.; HNHM 153455.

Campyloneurus pachypus Li, van Achterberg & Chen, 2020. Russia • 1 ♀; Primorskiy Territory, 20 km SW of Nakhodka, Dushkino; 1 Aug. 2013; A. Lelej leg.; forest, glades; ZISP. – South Korea • 1 ♀; Gangwon-do, Hongcheon-gun, Duchon-myeon; 11 Oct. 1995; J.Y. Choi leg.; NIBR.

Campyloneurus penini (Belokobylskij, 2000). Russia • 1 ♀ (holotype); Primorskiy Territory, 20 km SW of Putsilovka, Monakino; 24–28 Jun. 1993; S.A. Belokobylskij leg.; forest, glades; ZISP. – South Korea • 1 ♀; Gangwon-do, Hongcheon-gun, Naechon-myeon, Waya-ri, Baegamsan Mountain; 1 Sep.–18 Oct. 2002; D.-S. Ku leg.; Malaise trap; SMNE 526.

Cyanopterus (*Cyanopterus*) *anuphrievi* (Tobias & Abdinbekova, 1973). Russia • 1 ♀; Jewish Autonomous Region, Lesser Khingan Range, Radde, Amur River bank; 12–15 Jul. 2003; S.A. Belokobylskij leg.; forest, forest edges; ZISP.

Cyanopterus (*Cyanopterus*) *nigrator* (Zetterstedt, 1838). Russia • 1 ♀; Saratov Province, 5 km W of Dyakovka; 27 Jun. 2012; K. Samartsev leg.; forest (aspen, birch); ZISP

• 1 ♀; Samara Province, SE of Bakhilova Polyana; 13 Jul. 2010; K. Samartsev leg.; birch forest; ZISP.

Parallobracon oriens (Belokobylskij, 2000), comb. nov. Russia • 1 ♀ (paratype); Primorskiy Territory, 10 km E of Kavalerovo; 2 Aug. 1979; S.A. Belokobylskij leg.; forest; ZISP • 1 ♀ (paratype); Primorskiy Territory, 20 km SE of Spassk-Dalny; 31 Jul. 1998; S.A. Belokobylskij leg.; forest, forest edges and glades; ZISP.

Parallobracon tzymbali (Belokobylskij, 2000), comb. nov. Russia • 1 ♀ (paratype); Khabarovskiy Territory, Khekhtsir Range, Korfovskoe forestry; 22 Jul. 1981; D.R. Kasparyan leg.; ZISP • 1 ♀ (paratype); Primorskiy Territory, 15 km NW of Partizansk; 16 Aug. 1985; S.A. Belokobylskij leg.; forest; ZISP.

Results

Genus *Pseudocyanopterus* van Achterberg, Cao & Yang, 2020

Pseudocyanopterus van Achterberg, Cao & Yang, 2020 in Cao et al. 2020: 113 (type species: *Pseudocyanopterus raddeivorus* Cao, van Achterberg & Yang, 2020).

Diagnosis. *Pseudocyanopterus* is very similar to the genera *Bracomorpha* Papp, 1971 and the recently described *Parallobracon* Li, van Achterberg & Chen, 2021. The three taxa are associated by the following character states. Malar space more or less impressed, but malar suture not developed; metasoma with five visible tergites, their apical margins thick; second metasomal tergite with large anterolateral triangular areas delineated by anterolateral posteriorly diverging grooves and sublateral S-shaped grooves; median area of second metasomal tergite large, triangular; ovipositor apically acute, with weak nodus located somewhat distant from its apex and with weak serration (both structures become easily obliterated during oviposition and were not found in some species of *Bracomorpha*). The members of these genera are known to be parasitoids of xylophagous insects. Species of the genus *Bracomorpha* attack beetles from the families Cerambycidae and Curculionidae and lepidopterans of the family Tortricidae (Yu et al. 2016), *Pseudocyanopterus raddeivorus* Cao, van Achterberg & Yang is recorded from the oak longhorn beetle *Massicus raddei* (Blessig & Solsky) on *Quercus liaotungensis* Koidzumi (Cao et al. 2020); the biology of *Parallobracon* is unknown, but possibly also associated with xylophages.

Pseudocyanopterus, *Bracomorpha*, and *Parallobracon* run to the couplet 121 (*Campyloneurus* Szépligeti, 1900) in the key to the Old World genera of Braconinae (Quicke 1987). The genus *Campyloneurus* differs from all three genera by the absence of anterolateral posteriorly diverging grooves on second metasomal tergite. The differences between three related genera are presented in the key below (the characters additionally defining taxa under a certain paragraph of a key couplet, but variable in an alternative paragraph, are listed after a dash).

1 Dorsal side of scape (lateral view) longer than its ventral side, laterally straight or only slightly concave (Fig. 4B). Vein 3-SR 0.3–0.4× as long as vein SR1 (Figs 2B, 4A). Ovipositor sheath at least 2.6× as long as hind tibia, 0.85–1.40× as long as fore wing (Figs 2A, 3A). Malar space very weakly impressed. – Hind wing membrane basally evenly (but sometimes sparsely) setose (Fig. 4A, C) . ..... ***Pseudocyanopterus* van Achterberg, Cao & Yang**

– Dorsal side of scape (lateral view) as long as its ventral side or shorter, laterally concave (Fig. 2F). Vein 3-SR 0.5–0.8× as long as vein SR1 (Fig. 2E, H). Ovipositor sheath at most 0.9–2.4× as long as hind tibia, 0.2–0.7× as long as fore wing (Fig. 2D, G). Malar space distinctly impressed **2**

2 Ovipositor sheath 2.1–2.4× as long as hind tibia, 0.5–0.7× as long as fore wing (Fig. 2G) ..... ***Parallobracon* Li, van Achterberg & Chen**

– Ovipositor sheath 0.9–1.6× as long as hind tibia, 0.20–0.45× as long as fore wing (Fig. 2D) ..... ***Bracomorpha* Papp**

Remarks. The members of *Cyanopterus* with developed anterolateral areas on second metasomal tergite are considered here within *Bracomorpha* after Li et al. (2021), which included the latter taxon in *Cyanopterus* as a subgenus. In *Cyanopterus*, third–seventh metasomal tergites are equally sclerotised, with thin posterior margins, while in *Bracomorpha* five basal tergites are much coarser than the following and conceal them. Because this difference exceeds the subgeneric level, *Bracomorpha* is considered here a valid genus. The recently described genus *Parallobracon* differs from *Bracomorpha* mainly by the length of ovipositor and thus is likely to be considered a subgenus of the latter. However, a separate revision involving much more genera (e.g. *Bicarinibracon* Quicke & Walker and *Indabracon* van Achterberg, *Campyloneurus* Szépligeti, *Chelonogastra* group of genera, *Cyanopterus* Haliday, and others) is required in order to redefine their taxonomic statuses. Two species from the Russian Far East previously described in the genus *Cyanopterus* belong to *Parallobracon*, *P. oriens* (Belokobylskij, 2000), comb. nov. and *P. tzymbali* (Belokobylskij, 2000), comb. nov. The ovipositor sheath is equally long in these two species, 0.6–0.7 times as long as the fore wing, while in the type species *Parallobracon prolatus* Li, van Achterberg & Chen, 2021 it is 0.5–0.6 times as long as the fore wing (Li et al. 2021: 154).

Pseudocyanopterus pagiophloeusis Samartsev & Li, sp. nov.

http://zoobank.org/139D82E0-05AD-46DF-A278-DB21A549BC21

Figs 3, 4

Type material. ***Holotype.*** China • ♀; Shanghai, Songjiang District, Maogang; 12 Jun. 2018; Cong Chen & Shou-Yin Li leg.; pupated 18 Jun. and reared 26 Jun. 2018 from *Pagiophloeus tsushimanus* Morimoto; GSFGPM.

Paratypes. China • 4 ♀♀; same data as for holotype (but reared from different host larvae); GSFGPM • 1 ♂; same data as for preceding; GSFGPM • 2 ♀♀; same

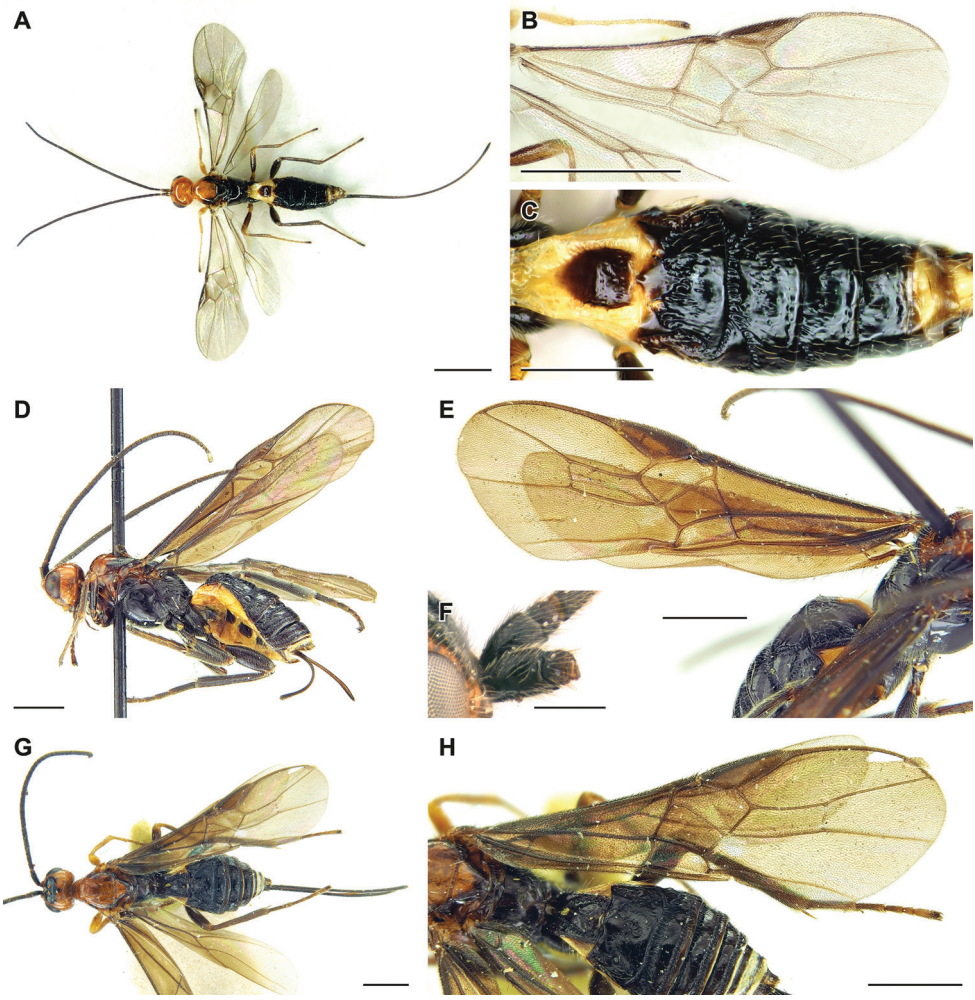

Figure 2. *Pseudocyanopterus raddeivorus* Cao, van Achterberg & Yang, 2020 (**A–C** holotype, female), *Bracomorpha praecinctus* (Shestakov, 1936) (**D–F** female), and *Parallobracon oriens* (Belokobylskij, 2000) (**G, H** paratype, female) **A, G** habitus, dorsal view **D** habitus, lateral view **B, E, H** fore wing **C** metasoma, dorsal view **F** scape, lateral view. Scale bars: 1 mm (**A, B, D, E, G, H**), 0.5 mm (**C**), 0.25 mm (**F**).

data as for preceding; 24 Jun. 2021; De-Jun Hao & Tao Li leg.; pupated 28 Jun. and reared 10 Jul. 2021; GSFGPM • 3 ♂♂; same data as for preceding; GSFGPM.

Etymology. The name of the new species is derived from the host's genus name.

Description. Female. Body length 5.8–6.2 mm; fore wing length 4.5–5.1 mm.

Head. Width of head (dorsal view) 1.5–1.7× its median length. Transverse diameter of eye (dorsal view) 1.6–1.9× as long as temple. Eyes with sparse short setae. OOL 2.4× OD; POL 0.85–0.98× OD; OOL 2.45–2.85× POL. Frons with deep mid-longitudinal groove. Longitudinal diameter of eye (lateral view) 1.2–1.3× its transverse diameter. Transverse diameter of eye (lateral view) 1.8–2.0× minimum width of

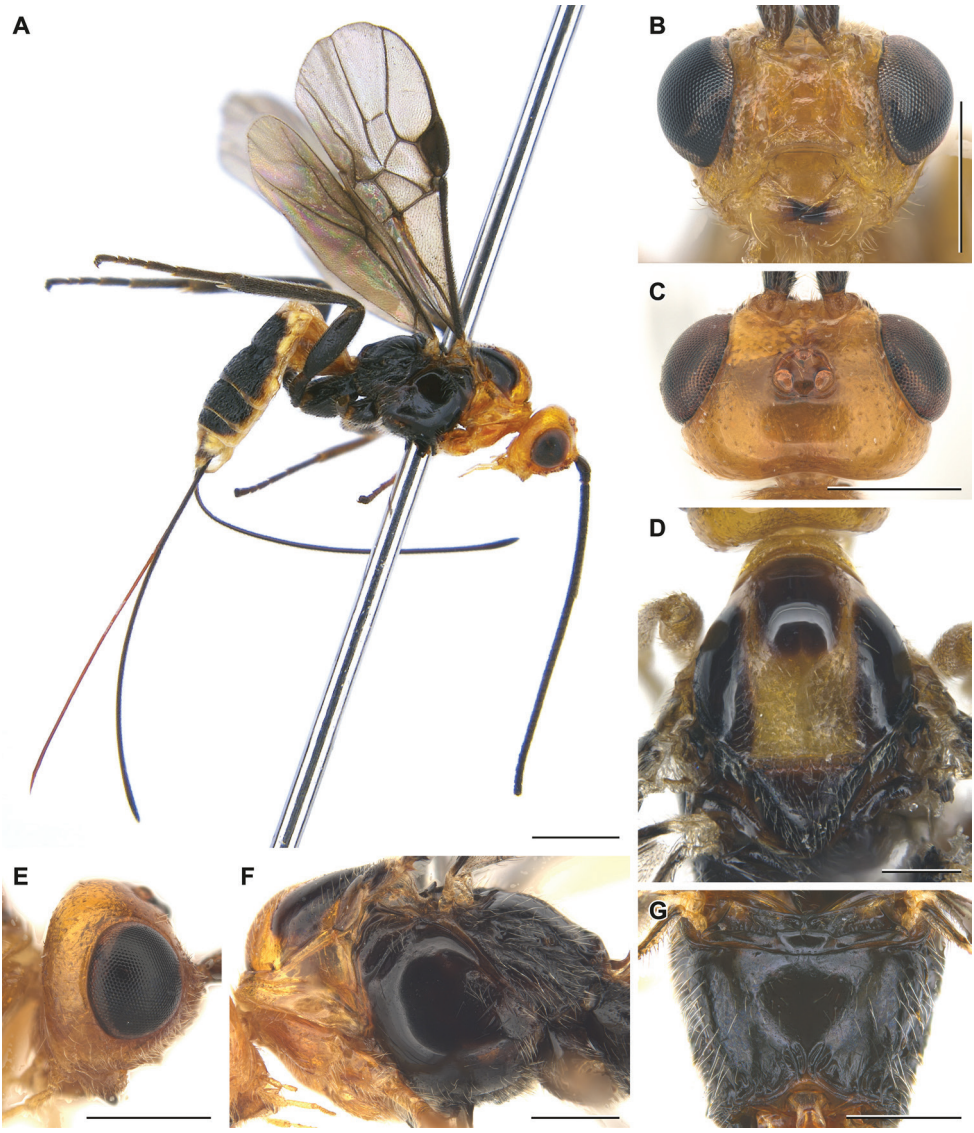

Figure 3. *Pseudocyanopterus pagiophloeusis* sp. nov. (female, **A, C, E-G** holotype **B, D** paratype) **A** habitus, lateral view **B** head, anterior view **C** head, dorsal view **D** mesoscutum and scutellum, dorsal view **E** head, lateral view **F** mesosoma, lateral view **G** propodeum, dorsal view. Scale bars: 1 mm (**A**), 0.5 mm (**B–G**).

temple, hind margins of eye and temple parallel or slightly broadened upwards. Face width 1.6× combined height of face and clypeus; 1.90–1.95× width of hypoclypeal depression. Longitudinal diameter of eye 2.7–2.9× as long as malar space (anterior view); malar space length 0.70–0.95× base of mandible. Malar space shallowly impressed. Width of hypoclypeal depression 1.50–1.55× distance from depression to eye. Clypeus separated from face by dorsal carina; clypeal sulcus impressed; clypeus flattened, with

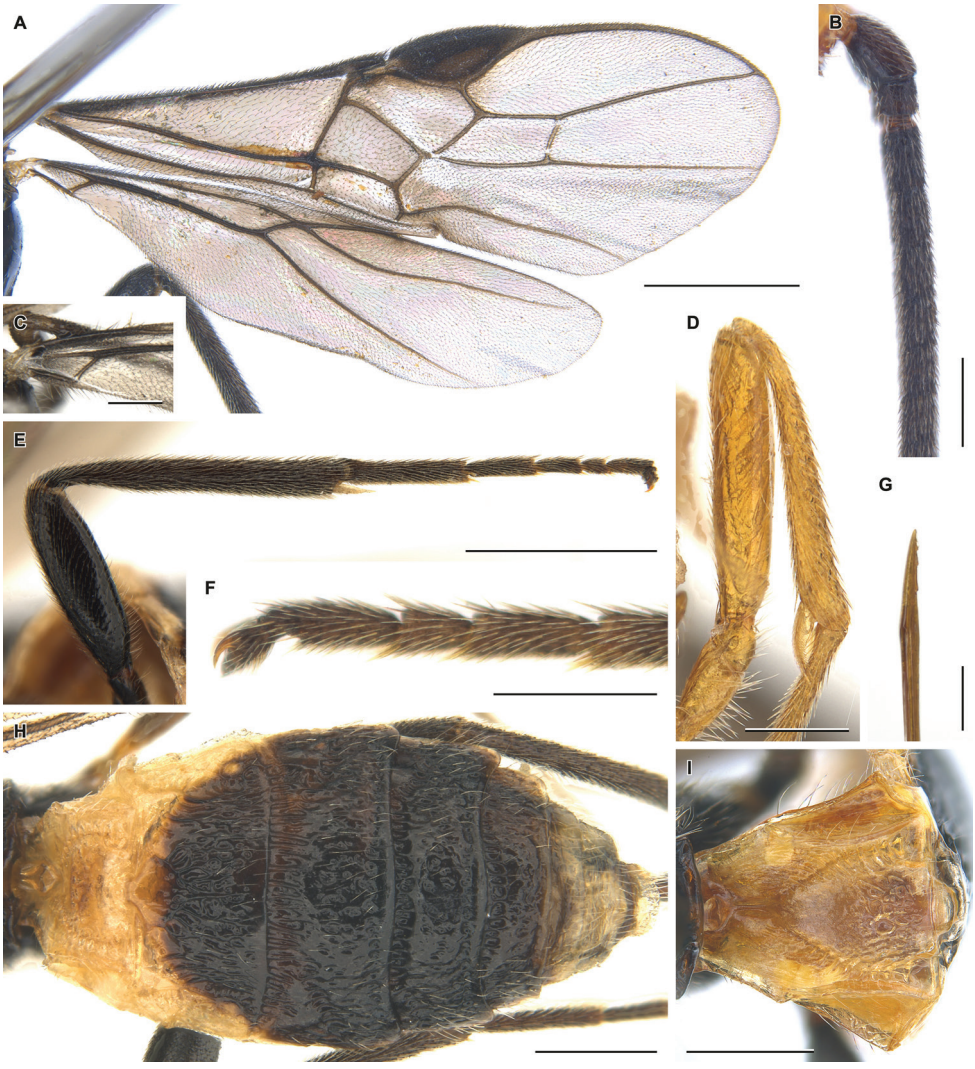

Figure 4. *Pseudocyanopterus pagiophloeusis* sp. nov. (female, **A, B, E, F, I** holotype **C, D, G, H** paratype) **A** wings **B** base of antenna, lateral view **C** base of hind wing **D** fore femur and tibia **E** hind leg **F** hind leg claw **G** apex of ovipositor **H** metasoma, dorsal view **I** first metasomal tergite, dorsal view. Scale bars: 1 mm (**A, E**), 0.5 mm (**C, H, I**), 0.25 mm (**B, D, F, G**).

protruding ventral rim, height of clypeus 0.25–0.30× width of hypoclypeal depression. Maxillary palp as long as eye.

Antenna with 32–38 antennomeres (incomplete in holotype, with 35 antennomeres left). Scape (lateral view) with somewhat protruding ventral margin, but its dorsal side as long as its ventral side. First flagellomere 2.2–2.4× as long as its apical width, 1.25–1.40× as long as second flagellomere. Middle flagellomeres 1.45–1.70× as long as wide. Penultimate flagellomere 1.7–1.9× as long as wide and 0.8–1.0× as long as apical flagellomere.

Mesosoma 1.75–1.85× as long as its maximum height. Transverse pronotal sulcus deep and crenulate anteriorly and smooth and shallow posteriorly. Notauli weakly impressed, united posteriorly. Mesoscutum widely glabrous, setose only on notaulic area and medioposteriorly. Scutellar sulcus crenulate, 0.12–0.13× as long as scutellum. Mesepimeral and metapleural sulci smooth. Mesopleural pit deep and wide, separated from mesepimeral sulcus.

Wings. Pterostigma 2.6–2.9× as long as wide. Vein 1-R1 1.30–1.55× as long as pterostigma. Marginal cell 5.5–5.6× as long as distance from its apex to apex of wing. Vein 3-SR 2.3–2.6×, 0.35–0.40×, and 1.30–1.35× as long as veins r, SR1 and 2-SR, respectively. Vein 1-M 0.65–0.70× and 1.55–1.70× as long as veins 1-SR+M and m-cu, respectively. Vein 1-SR+M weakly curved anteriorly in proximal part. Vein cu-a weakly postfurcal. Hind wing membrane proximally with more or less sparsed setosity (Fig. 4A, C); vein 1-1A 1.4–1.7× as long as cu-a; vein 2-1A absent.

Legs. Fore tibia widely with sparse long thick setae. Hind femur 3.35–3.45× as long as wide, with subapical transverse row of thick setae. Hind tibia 1.50–1.55× as long as hind femur, its inner spur 0.33–0.37× as long as hind basitarsus. Hind tarsus 0.95–1.00× as long as hind tibia. Fifth segment of hind tarsus 0.35–0.40× and 0.7–0.8× as long as hind basitarsus and second segment, respectively. Basal lobes of claws large, rectangular, but not protruding.

Metasoma with five coarsely sclerotised tergites, about 1.6× as long as mesosoma. Median length of first tergite 0.70–0.85× as large as its apical width. Dorsolateral carinae of first metasomal tergite developed. Median area of first tergite separated by crenulate furrow. Second tergite medially 1.05–1.10× as long as third tergite, its basal width 1.75–1.80× its median length. Second metasomal tergite with short (only delineating anterolateral areas) sublateral posteriorly converging furrows and with anterolateral, posteriorly diverging, crenulate grooves; anterolateral areas elongate-triangle, smooth, with sharp crenulate margins; median area strongly elevated, wide, triangular, with crenulate margin. Suture between second and third tergites deep and wide, weakly curved and crenulate. Third metasomal tergite anterolaterally with wide areas separated by crenulate suture. Apical margins of third to fifth tergites thick, with foveate transverse subapical grooves. Ovipositor sheath 2.55–2.60× as long as hind tibia and 0.85–0.90× as long as fore wing. Apex of ovipositor with developed dorsal nodus and ventral serration.

Sculpture. Head and mesosoma mainly smooth. Face medially smooth, laterally punctate. Malar space granulate. Propleuron smooth. Mesopleuron medially weakly granulate. Propodeum smooth with short rugae apicomedially. First metasomal tergite laterally weakly rugulose, its median area rugose posteriorly. Second metasomal tergite areolate-rugose, third–fifth tergites foveolate-rugose.

Colour. Head, pronotum, propleuron, fore coxa and mesoscutum along notauli (or its median lobe entirely) reddish yellow. First metasomal tergite, anterolateral parts of second tergite, sixth and seventh tergites and sternites pale yellow. The rest of body brownish black. Wing membrane weakly darkened, pterostigma and wing veins brown; tegulae dark brown.

Male. Body length 4.8 mm; fore wing length 3.7 mm. Face width 1.7× combined height of face and clypeus. Longitudinal diameter of eye 3.1× as long as malar space (anterior view); malar space length 0.7× base of mandible. Antenna with 28–32 antennomeres. First, middle and penultimate flagellomeres 2.5×, 2.2×, and 2.1× as long as wide, respectively. Median length of first metasomal tergite 1.3× its apical width; second tergite medially 1.1× as long as third tergite, its basal width 1.5× its median length. First metasomal tergite and anterolateral parts of second tergite and pale yellow; the rest of metasoma brownish black. Otherwise similar to female.

Distribution. China (Shanghai).

Biology. Gregarious ectoparasitoid. Host: *Pagiophloeus tsushimanus* Morimoto, 1982 (Coleoptera: Curculionidae: Molytinae). Host plant: *Cinnamomum camphora* (L.) J. Presl (Lauraceae).

Diagnosis. The differences between two known species of *Pseudocyanopterus* are presented in the dichotomy below.

1 Median length of first metasomal tergite 0.70–0.85× its apical width (Fig. 4I). Ovipositor sheath 0.85–0.90× as long as fore wing. First flagellomere 2.2–2.4× as long as apically wide (Fig. 4B). Median area of first metasomal tergite apically rugose (Fig. 4I). Second metasomal tergite with weakly proximally curved dorsolateral impressions, areolate-rugose (Fig. 4H); third–fifth tergites areolate-rugose to foveolate-rugose, their apical margins with deep, complete and foveate transverse subapical grooves..... ..... ***Pseudocyanopterus pagiophloeusis*** **Samartsev & Li, sp. nov.**

– Median length of first metasomal tergite 1.3–1.4× its apical width (Fig. 2C). Ovipositor sheath 1.3–1.4× as long as fore wing (Fig. 2A). First flagellomere about 2.7× as long as apically wide. Median area of first metasomal tergite apically weakly foveate (Fig. 2C). Second metasomal tergite with S-shaped dorsolateral impressions, longitudinally rugose anteriorly, smooth posteriorly; third–fifth tergites almost smooth, their apical margins with incomplete, weak and weakly crenulate transverse subapical grooves ....***Pseudocyanopterus raddeivorus*** **Cao, van Achterberg & Yang**

Additional taxonomic treatments

Genus *Bracomorpha* Papp, 1971

Bracomorpha Papp, 1971: 276 (type species: *Bracomorpha torkai* Papp, 1971). Tobias and Abdinbekova 1973: 431 (synonymised with *Ipobracon* Thomson, 1892); Shenefelt 1978: 1808 (as a synonym of *Ipobracon*); Quicke 1984: 358 (as a valid genus); 1987: 93 (in key), 104; Li et al. 2021: 116 (in key; as a subgenus of *Cyanopterus* Haliday).

***Bracomorpha hinoemataensis* (Belokobylskij, 2000), comb. nov.**

Cyanopterus hinoemataensis Belokobylskij, 2000 in Belokobylskij and Tobias 2000: 175.

***Bracomorpha kusarensis* (Abdinbekova, 1973), comb. nov.**

Ipobracon kusarensis Abdinbekova, 1973 in Tobias and Abdinbekova 1973: 437; Shenefelt 1978: 1822; Tobias 1986: 105.

***Bracomorpha praecinctus* (Shestakov, 1936), comb. nov.**

Ipobracon praecinctus Shestakov 1936 in Telenga 1936: 96; Shestakov 1940: 2; Shenefelt 1978: 1828; Tobias and Abdinbekova 1973: 437; Belokobylskij and Tobias 2000: 175 (as *Cyanopterus praecinctus*).

Genus *Parallobracon* Li, van Achterberg & Chen, 2021

Parallobracon Li, van Achterberg & Chen, 2021: 150 (type species: *Parallobracon prolatus* Li, van Achterberg & Chen, 2021).

***Parallobracon oriens* (Belokobylskij, 2000), comb. nov.**

Cyanopterus oriens Belokobylskij, 2000 in Belokobylskij and Tobias 2000: 173.

***Parallobracon tzymbali* (Belokobylskij, 2000), comb. nov.**

Cyanopterus tzymbali Belokobylskij, 2000 in Belokobylskij and Tobias 2000: 173.

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