



A remarkable new species of *Polochridium* Gussakovskij, 1932 (Hymenoptera: Sapygidae) from China

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Abstract

A new species, *Polochridium spinosum* Yue, Li & Xu, **sp. nov.** (China: Hunan, Shaanxi, Henan), is described and illustrated. A key to the four Chinese species of Sapygidae is given.

Key words: Sapyginae, new species, Palearctic Region, Oriental Region

Introduction

Sapygidae is a small family of Vespoidea and includes 70 extant species in 12 genera (Aguiar *et al.* 2013; Achterberg 2014; Fernández & Sarmiento 2015), which are parasites of the bees Megachilidae, Apidae, Colletidae, rarely on wasps Eumeninae of Vespidae (Torchio 1979; Xu 1994; Kurzenko, 2012). Currently three species of the subfamily Sapyginae are known from China: *Sapyga coma* Yasumatsu & Sugihara, 1938, *S. similis* (Fabricius 1793), and *Polochridium eoum* Gussakovskij, 1932 (Kurzenko & Gusenleitner 1994; Xu 1994). Recently we collected in Hunan, Shaanxi and Henan fourteen females and one male of *Polochridium*, which described below as new species.

Materials and methods

Descriptions of the species have been made under a Leica MZ125 stereomicroscope, with lighting achieved through a 27W fluorescent lamp. Photographic images were produced with a digital camera Cool SNAP attached to the Zeiss Stemi 2000-cs stereomicroscope, and plates were finished with ACDSee 10.0 and Photoshop CS 8.0.1, mostly to adjust the size and background. Morphological terminology follows Achterberg (2014) and Kurzenko (1996). The measurements in the description are relative, except for body length and fore wing length given in mm. The holotype and paratypes of the new species are deposited in the Hymenopteran Collection of South China Agricultural University (SCAU).

Genus *Polochridium* Gussakovskij, 1932

Polochridium Gussakovskij 1932: 48, figs 18, 19; Kurzenko & Gusenleitner 1994: 600, figs 71, 87–90; Kurzenko 1995: 192, figs 84, 1, 85, 1–7; 1996: 94, figs 19, 28, 31; 2012: 403.

Type species *Polochridium eoum* Gussakovskij, 1932, by original designation and monotypy.

Diagnosis. Propodeum in both sexes laterad with large shiny area. Mesotarsomere 1 of both sexes 1.4–2.0 × mesotarsomere 2–4 combined. *Male.* Apical flagellomere similar in shape and size to penultimate one, with ventral tyloid. Fifth and following flagellomeres with shallow, shiny concavity along ventral tyloid.

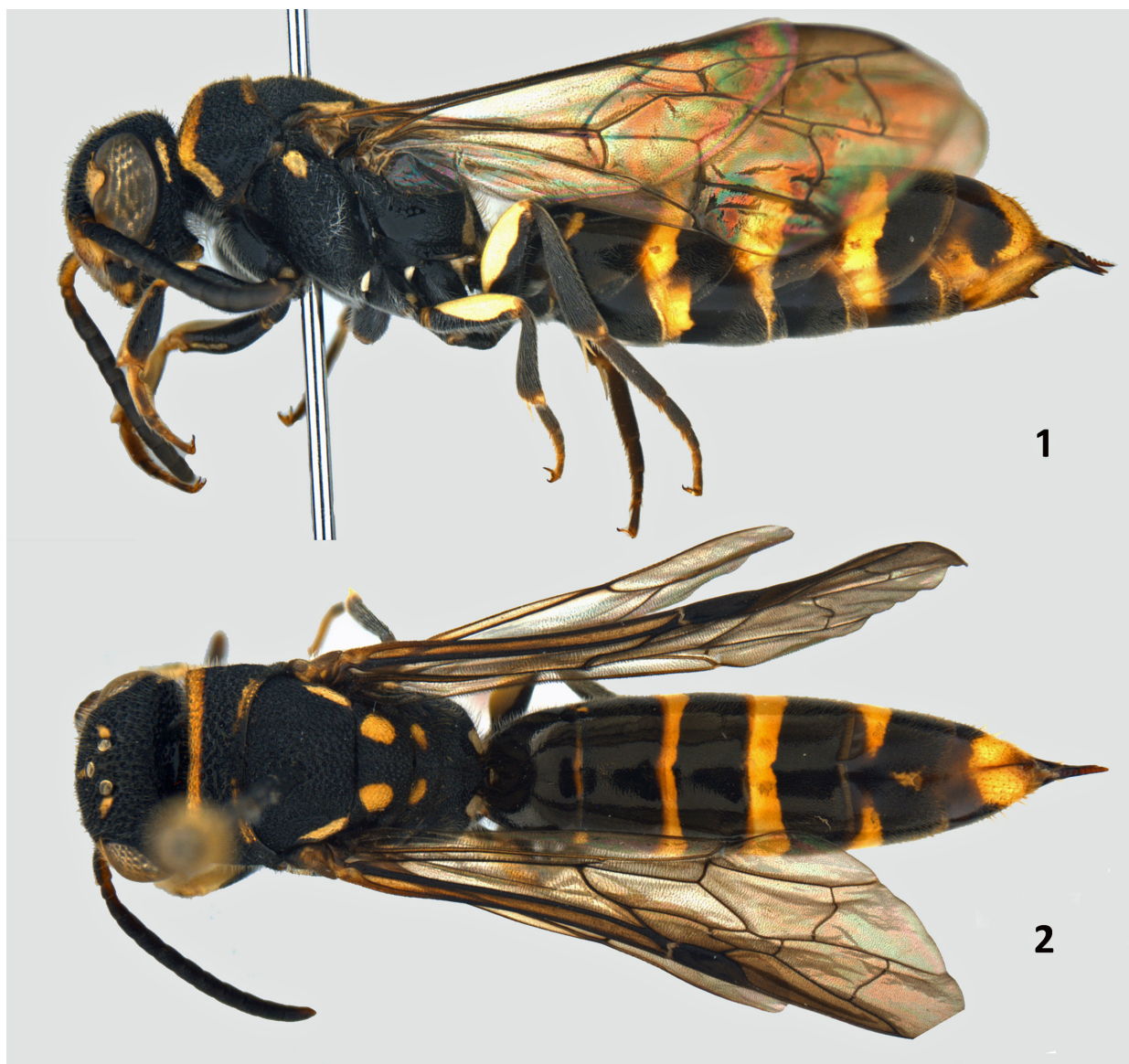
Distribution. Oriental (new record) and Palaeartic Regions (Kurzenko, 1996).

Species included. Type species *Polochridium eoum* Gussakovskij, 1932 and *P. spinosum* sp. nov. described below.

***Polochridium spinosum* Yue, Li & Xu, sp. nov.**

(Figs 1–17)

Diagnosis. Metasomal sternum 6 of female along median line with strong longitudinal median carina and sharp spine (Figs 7, 8). Clypeus mostly yellow in both sexes (Figs 5, 14). Inner orbit of eye with yellow patch extending to posterior ocelli in female (Figs 4, 5), and not extending to posterior ocelli in male (Figs 13, 14). Frons with yellow subtriangular median area extending to anterior ocellus in female (Figs 4, 5), and not extending to anterior ocellus in male (Figs 13, 14). Temple with two yellow stripes in female (Fig. 1), and with only one yellow stripe in male (Fig. 10). Pronotum with yellow anterior transverse stripe and slender yellow posterior transverse stripe interrupted medially in female (Fig. 2), and with only yellow anterior transverse stripe in male (Fig. 11). Mesoscutum, mesoscutellum, metanotum and propodeum each with pair of yellow or pale yellow markings in female (Fig. 2), and mesoscutum and propodeum each with pair of yellow or pale yellow markings in male (Fig. 11).



FIGURES 1, 2. *Polochridium spinosum* sp. nov., holotype, ♀, habitus. 1. Lateral view; 2. Dorsal view.

Material examined. CHINA: holotype, ♀, China, Hunan, Hupingshan National Nature Reserve, 11.VII.2009, Shi-hong Wang, No. 2016000007 (SCAU). Paratypes: 5♀ with same data as holotype, No. 2016000004–2016000006; 2016002716–2016002717 (SCAU); 1♀, same place, 10.VII.2009, Shi-hong Wang, No. 2016000008 (SCAU); 1♀, same place, 12.VII.2009, Shi-hong Wang, No. 2016000003 (SCAU); 2♀, same place, 11–13.VII.2009, Qi Yang, No. 2016000001, 2016000002 (SCAU); 1♂, same place, 8–14.VII.2009, Qi Yang, No. 2016000009 (SCAU); 2♀, China, Shaanxi, Liubai, 7.VIII.2015, Jun Feng, No. 2016002485, 2016002486 (SCAU); 1♀, same place, 7.VIII.2015, Yi-cheng Li, No. 2016002487; 1f#, China, Henan, Baotianman, 20.VIII.2007, Zai-fu Xu, No. 2016002718 (SCAU).

Description. FEMALE (holotype). Body length 10.6 mm. Fore wing length 7.2 mm. *Head.* Penultimate flagellomere width $1.15 \times$ apical flagellomere width (Fig. 3). Malar space much shorter than apical width of scape (5:12). Frons and temple densely and coarsely punctate (Figs 1, 5). Vertex coarsely punctate, with distinct smooth interspaces; smooth interspaces between punctures about equal diameter of punctures (Fig. 4). Malar space moderately punctate. Clypeus sparsely punctate (Fig. 5).



FIGURES 3–8. *Polochridium spinosum* sp. nov., holotype, ♀. 3. Antenna; 4. Head, dorsal view; 5. Head, frontal view; 6. Mesopleuron, metapleuron and propodeum, lateral view; 7. Metasoma, ventral view; 8. Apex of metasoma, lateral view.

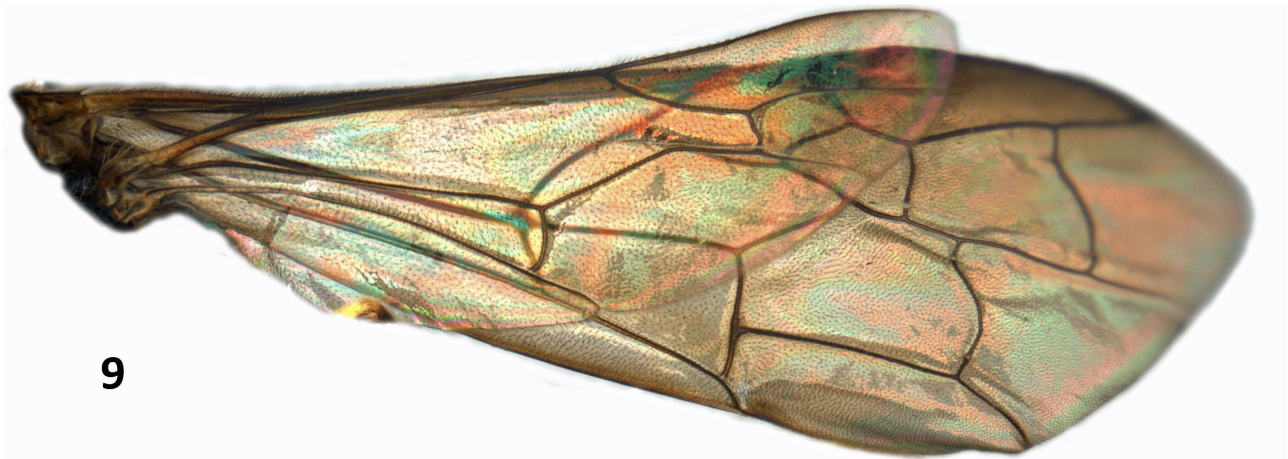


FIGURE 9. *Polochridium spinosum* sp. nov., holotype, ♀, wings.

Mesosoma. Pronotum coarsely punctate, with narrow smooth interspaces medio-dorsally; smooth interspaces about half diameter of punctures (Fig. 2). Mesoscutum and mesoscutellum densely and coarsely punctate (Fig. 2). Mesopleuron densely and coarsely punctate (Figs 1, 6). Metapleuron densely and moderately punctate anteriorly, and rugose posteriorly with smooth shiny area above it (Fig. 6). Metanotum densely and moderately coarsely punctate (Fig. 2). Propodeum densely and moderately coarsely punctate dorsally, laterad with large shiny area (Figs 1, 6).

Wings. Fore wing with vein *2m-cu* postfurcal, vein *cu-a* interstitial, and vein *2r-m* sinuate (Fig. 7).

Legs. Mesotarsomere 1 $1.4 \times$ mesotarsomeres 2–4 combined. Metacoxa with longitudinal carina dorsally; metatarsomere 1 $1.4 \times$ metatarsomere 2–4 combined.

Metasoma. Metasoma slender in dorsal view (Fig. 2). Metasomal terga shiny, sparsely and finely punctate, with smooth interspaces much wider than diameter of punctures (Fig. 2). Metasomal sternum 6 along median line with strong longitudinal median carina and sharp spine (Figs 6, 8). Ovipositor serrate dorsally.

Color. Black. Scape and pedicel yellow ventrally, and blackish-brown dorsally (Figs 2, 3). Flagellomere 1 yellowish-brown ventrally, and blackish-brown dorsally (Fig. 3). Clypeus mostly yellow, with blackish-brown marking antero-medially (Fig. 5). Mandible mostly yellowish-brown, with basal part and teeth black. Inner orbit of eye with yellow patch extending to posterior ocelli (Figs 4, 5). Frons with yellow subtriangular median area extending to anterior ocellus (Figs 4, 5). Temple with two yellow stripes (Fig. 1). Pronotum with yellow anterior transverse stripe and slender yellow posterior transverse stripe interrupted medially (Fig. 2). Mesoscutum with pair of elongate lateral yellow patch (Fig. 2). Mesoscutellum with pair of large lateral yellow spots (Fig. 2). Tegula with yellow patch. Mesopleuron with elongate yellow patch (Figs 1, 6). Metanotum with pair of small lateral yellow spot (Fig. 2). Propodeum with pair of large irregular pale yellow patch latero-dorsally (Fig. 2). Procoxa outside with small yellow spot; profemur with long and wide yellow stripe dorsally, and short and slender stripe ventrally; inner side of protibia with long and wide yellow stripe; protarsomere 1 outside with faint, short and slender yellow stripe. Mesofemur dorsally with long and wide yellow stripe. Metafemur dorsally with long and wide yellow stripe. Wings infusate, subhyaline, with veins and stigma blackish-brown (Fig. 9). Metasomal terga 2–5 and metasomal sterna 2–5 with yellow anterior transverse stripes; metasomal sternum 2 with median oval yellow spot; metasomal tergum 6 and metasomal sternum 6 mostly yellow (Figs 1, 2, 7, 8).

Variation. Body length 9.6–11.0 mm. One female from Shaanxi without yellow posterior transverse stripe on pronotum and with another pair of small lateral spots on mesoscutellum. Another female from Shaanxi with clypeus yellow mostly with only anterior margin blackish-brown, three small yellow spots on mesoscutum, and pair of small lateral spots on mesoscutellum.

MALE. Body length 9.6 mm. Fore wing length 6.3 mm. *Head.* Antennal segments beginning from 4, below along tyloids with very shallow longitudinal concavity; penultimate flagellomere width $1.15 \times$ apical flagellomere width (Fig. 12). Malar space much shorter than apical width of scape (5:11). Frons and temple densely and coarsely punctate (Figs 10, 14). Vertex coarsely punctate, with distinct smooth interspaces; smooth interspaces between

punctures about equal diameter of punctures (Fig. 13). Malar space moderately punctate. Clypeus sparsely punctate (Fig. 14).



FIGURES 10, 11. *Polochridium spinosum* sp. nov., paratype, ♂, habitus. 10. Lateral view; 11. Dorsal view.



FIGURES 12–17. *Polochridium spinosum* sp. nov., paratype, ♂. 12. Antenna; 13. Head, dorsal view; 14. Head, frontal view; 15. Mesopleuron, metapleuron and propodeum, lateral view; 16. Wings; 17. Metasoma, ventral view.

Mesosoma. Pronotum coarsely punctate, with narrow smooth interspaces medio-dorsally; smooth interspaces about half diameter of punctures (Fig. 11). Mesoscutum and mesoscutellum densely and coarsely punctate (Fig. 11). Mesopleuron densely and coarsely punctate (Figs 10, 15). Metapleuron densely and moderately punctate anteriorly, and rugose posteriorly with smooth shiny area above it (Figs 10, 15). Metanotum densely and moderately coarsely punctate (Fig. 11). Propodeum densely and moderately coarsely punctate dorsally, laterad with large shiny area (Figs 11, 15).

Wings. Fore wing with vein *2m-cu* postfurcal, vein *cu-a* interstitial, and vein *2r-m* sinuate (Fig. 16).

Legs. Mesotarsomere 1 $1.4 \times$ mesotarsomeres 2–4 combined. Metacoxa with longitudinal carina dorsally; metatarsomere 1 $1.4 \times$ metatarsomere 2–4 combined.

Metasoma. Metasoma slender in dorsal view (Fig. 11). Metasomal terga shiny, sparsely and finely punctate, with smooth interspaces much wider than diameter of punctures (Fig. 11).

Color. Black. Scape and pedicel yellow ventrally, and blackish-brown dorsally (Figs 11, 12). Clypeus mostly yellow, with anterior margin blackish-brown (Fig. 14). Mandible mostly yellow, with basal part and teeth black. Inner orbit of eye with yellow patch not extending to posterior ocelli (Figs 13, 14). Frons with yellow subtriangular median area not extending to anterior ocellus (Figs 13, 14). Temple with one yellow stripe (Fig. 10). Pronotum with

only yellow anterior transverse stripe (Fig. 11). Mesoscutum with pair of elongate lateral yellow patch (Fig. 11). Mesopleuron with small and round yellow spot (Figs 10, 15). Propodeum with pair of irregular pale yellow patch latero-dorsally (Fig. 11). Profemur with yellow stripe apico-dorsally; inner side of protibia with yellow stripe; protarsus yellow. Mesofemur with yellow stripe apico-dorsally. Metafemur dorsally with long and wide yellow stripe. Wings infusate, subhyaline, with veins and stigma blackish-brown (Fig. 16). Metasomal terga 2–5 and metasomal sterna 2–5 with yellow anterior transverse stripes; metasomal tergum 6 and metasomal sternum 6 mostly yellow (Figs 10, 11, 17).

Distribution. Both Oriental and Palaearctic Regions of China (Hunan, Shaanxi, Henan).

Remarks. The new species is the second species of the genus *Polochridium*. It differs from type species *Polochridium eoum* Gussakovskij by having female metasomal sternum 6 with median longitudinal carina with sharp spine (without such carina and spine in *P. eoum*), by mesotarsomere 1 $1.4 \times$ mesotarsomeres 2–4 combined in both sexes (about $2.0 \times$ in *P. eoum*), by female metasomal sternum 2 with median oval yellow spot (lacking in *P. eoum*), by metasomal sterna 2–5 and by metasomal tergum 5 in both sexes posteriorly with median emargination (without such emargination in *P. eoum*).

Etymology. The specific epithet is Latin adjective “*spinsum*”, with the reference to sharp spine on female metasomal sternum 6 (Fig. 8).

Key to the Chinese species of Sapygidae

1. Male. Apical flagellomere much smaller than preapical one, without tyloid; lateral side of propodeum in both sexes entirely punctuated or with small, fairly shining area. (Genus *Sapyga* Latreille) 2
- Male. Apical flagellomere about same shape and size as preapical one, with tyloid (Fig. 12); lateral side of propodeum in both sexes with large, smooth shiny area (Figs 1, 6, 10, 15).—Mesotarsomere 1 in both sexes about $1.4\text{--}2.0 \times$ mesotarsomeres 2–4 taken together. (Genus *Polochridium* Gussakovskij) 3
2. Pronotum without yellow marking; inner orbit of eye with full yellow patch; metasomal terga 1–2 black; metasomal sternum 7 partly yellow.—China (Jiangsu, Shandong), Republic of Korea, Russia (Primorskiy Territory), Japan (Honshu)
..... *Sapyga coma* Yasumatsu & Sugihara
- Pronotum with yellow anterior transverse stripe (interrupted medially); inner orbit of eye with lower yellow patch; metasomal terga 1–2 mostly brownish-orange; metasomal sternum 7 black.—North China, Mongolia, Russia (Magadan Prov., Khabarovsk Territory, Primorskiy Territory, Sakhalin Island, Eastern Yakutia, Buryatia, Western Siberia, Polar Ural, European part); North-Eastern Kazakhstan, Europe *Sapyga similis* (Fabricius)
3. Metasomal sternum 6 with median longitudinal carina with sharp spine (Figs 7, 8); metasomal sternum 2 with median oval yellow spot (Fig. 7); metasomal sterna 2–5 and metasomal tergum 5 posteriorly with median emargination.—China (Hunan, Shaanxi) *Polochridium spinosum* **sp. nov.**
- Metasomal sternum 6 without median longitudinal carina and without sharp spine; metasomal sternum 2 without median oval yellow spot; metasomal sterna 2–5 and metasomal tergum 5 posteriorly without median emargination.—China (North-East, Neimenggu, Hebei), Republic of Korea, Russia (Primorskiy Territory) *Polochridium eoum* Gussakovskij

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