

Three new Chinese species of *Pseudocolenis* Reitter, 1884 (Coleoptera: Leiodidae: Leiodinae)

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Taxonomy, new species, description, Coleoptera, Leiodidae, Leiodinae, *Pseudocolenis*, China

Abstract. *Pseudocolenis simplicornis* sp. nov., *P. atrobrunnea* sp. nov. and *P. distincta* sp. nov. from China (Yunnan), are described and distinguished from similar species and their genitalia are figured.

INTRODUCTION

The species of the genus *Pseudocolenis* Reitter, 1884 are known to occur in the Asian Palaearctic, the Oriental Region and the Australian Region (New Guinea). Altogether 50 species of the genus have been described up to now, among them 30 species from China. Chinese and Nepalese species of the genus were reviewed including recent descriptions of new species by Švec (2009, 2014).

In the present paper, three additional species new to science are described from China. Therefore the present number of the *Pseudocolenis* species is 53, among them 33 species from continental China and Taiwan.

MATERIAL AND METHODS

Abbreviations:

MSBC Michael Schülke, private collection, Berlin, Germany;
SMTD Staatliches Museum für Tierkunde Dresden, Germany;
ZSPC Zdeněk Švec, private collection, Praha, Czech Republic.

The present work is based on the material recently collected by Michael Schülke (Berlin) and Andres Pütz (Eisenhüttenstadt). This material has been compared with the type and other material deposited in the author collection.

Collecting data cited in quotation marks are taken from the locality labels accompanying the examined examples. The type material is preserved in SMTD, MSBC and in ZSPC.

The specimens were first relaxed in 4% acetic acid, then rinsed in water and dissected in a drop of water.

The genitalia of the holotypes and paratypes were mounted in polyvinylpyrrolidone or Euparal mountant on a transparent label added to the same pin as the dissected specimen.

The mesoventral structures are of two types in the genus *Pseudocolenis*: they are indicated by the letters A and B (Švec 2014). Two of the species described in this paper possess the structure A that is represented by a longitudinal bump flatly or narrowly rounded in oblique view resembling wide roundly angled ridge, gradually or more steeply falling anteriorly

in the lateral view, the other one (*P. atrobrunnea* sp.n.) possesses structure of the type B represented in this species by a narrow longitudinal carina gradually falling in oblique view. The classification of the density of the elytral strigosity follows the cited work.

The measurements of the total body length were taken from all specimens examined. Specific measurements of the individual body parts were taken from the holotypes only. They were measured to the first decimal place of millimetre except the distance between elytral strigosites that is approximated on the hundredth of the millimetre.

Abbreviations of body parts and measurements:

AII-AXI antennomeres II-XI.

TI-TIII tarsomeres I-III.

AIII/AII The ratio of the length of the antennomeres III:II, analogously ratios of others antennomeres.

L Length.

W Width.

L/W or W/L Ratio between measurements.

The descriptions are based on the holotypes. Variability is mentioned in the paragraph “Variation” if necessary and includes features exhibited by paratypes. Important characters of the sexual dimorphism are also included in the mentioned paragraph.

DESCRIPTIONS

Although many useful characters for the identification of the individual species seem to be detectable observing the morphological structures, especially type of elytral strigosity, the structure of the male antennae and the structure of mesoventrite a compilation of a key to the determination of the *Pseudocolenis* species seems to be very difficult and not advisable at present. For the reliable identification the best way is a comparison of the shape of male and female genitalia including the shape of endophallic structures. Therefore, only species groups and subgroups were defined and subsequently newly reviewed by Švec (2009, 2014) and modified in this paper with help of external characters. The group and subgroup concept is upgraded below.

A review of the Chinese species of the genus *Pseudocolenis* Reitter, 1884

species	distribution *	type of mesoventral structure	absence (A) or presence and density** of elytral strigosites	7 th antennomere strikingly enlarged (L)/ normal (N)	species group and subgroup (I or II)
<i>P. laticornis</i> Angelini et Švec, 2000	CH (Hubei, Shaanxi, Yunnan)	A	A	N	<i>P. bouvieri</i> I
<i>P. neglecta</i> Angelini et Švec, 2000	CH (Hubei, Sichuan, Yunnan)	A	A	N	<i>P. bouvieri</i> I
<i>P. simplicicornis</i> sp. nov.	CH (Yunan)	A	A***	N	<i>P. bouvieri</i> I
<i>P. antennata</i> Švec, 2014	CH (Yunan)	A	A	L	<i>P. bouvieri</i> II
<i>P. appendiculata</i> Švec, 2014	CH (Yunnan)	A	VS	N	<i>P. grandis</i> I
<i>P. curvipes</i> Švec, 2014	CH (Yunnan)	A	VS	N	<i>P. grandis</i> I.

<i>P. fortipunctata</i> Švec, 2009	CH (Yunnan)	A	VS	N	<i>P. grandis</i> I
<i>P. michaeli</i> Švec, 2009	CH (Yunnan)	A	VS	N	<i>P. grandis</i> I
<i>P. picea</i> Hisamatsu, 1964	TA, JA	A	VS	N	<i>P. grandis</i> I
<i>P. similis</i> Švec, 2014	CH (Yunnan)	A	VS	N	<i>P. grandis</i> I
<i>P. sinica</i> Angelini et Švec, 1995	CH (Yunnan)	A	VS	N	<i>P. grandis</i> I
<i>P. strigicollis</i> Švec, 2009	CH (Yunnan)	A	VS	N	<i>P. grandis</i> I
<i>P. torta</i> Švec, 2014	CH (Yunan)	A	VS	N	<i>P. grandis</i> I.
<i>P. yunnanica</i> Švec, 2009	CH (Yunnan)	A	VS	N	<i>P. grandis</i> I
<i>P. lenka</i> Švec, 2002	CH (Hubei)	A	VS	L	<i>P. grandis</i> II
<i>P. shannae</i> Angelini et Švec, 2000	CH (Shaanxi, Hubei)	A	VS	L	<i>P. grandis</i> II
<i>P. parva</i> Švec, 2014	CH (Yunnan)	A	S	N	<i>strigosa</i> I
<i>P. strigosa</i> (Portevin, 1905)	CH (Shaanxi, Sichuan, Yunnan), IN, NE, TH	A	S	N	<i>strigosa</i> I
<i>P. disparilis</i> (Champion, 1924)	CH(Yunnan), IN, NE	A	S	L	<i>strigosa</i> II
<i>P. schuelkei</i> Švec, 2002	CH (Sichuan, Yunnan)	A	S	L	<i>strigosa</i> II
<i>P. annulata</i> Švec, 2009	CH (Yunnan)	A	D	N	<i>hilleri</i> I
<i>P. hilleri</i> Reitter, 1884	CH (Fujian, Jilin, Shaanxi, Yunnan), JA (Shikoku), KO, FE (Chabarov. Kraj, Primor. Kraj)	A	D	N	<i>hilleri</i> I
<i>P. interposita</i> Švec, 2009	CH (Yunnan)	A	D	N	<i>hilleri</i> I
<i>P. klapperichi</i> Daffner, 1988	TA	A	D	N	<i>hilleri</i> I
<i>P. acuminata</i> Švec, 2009	CH (Yunnan), IN, NE	A	D	L	<i>hilleri</i> II
<i>P. distincta</i> sp. nov.	CH (Yunnan)	A	D	L	<i>hilleri</i> II
<i>P. major</i> Švec, 2009	CH (Yunnan)	A	ED	N	<i>rastrata</i> I
<i>P. rastrata</i> (Champion, 1923)	CH (Yunnan), IN	A	ED	N	<i>rastrata</i> I
<i>P. dilatata</i> Angelini et Švec, 2000	CH (Shaanxi, Sichuan, Hubei, Yunnan)	A	ED	L	<i>rastrata</i> II
<i>P. forticornis</i> Daffner, 1988	TA	A	ED	L	<i>rastrata</i> II
<i>P. atrobrunnea</i> sp. nov.	CH (Yunnan)	B	VS	N	<i>sedlaceki</i> I
<i>P. carinata</i> Švec, 2009	CH (Yunnan)	B	D	L	<i>sedlaceki</i> II
<i>P. crassicornis</i> Švec, 2009	CH (Yunnan)	B	D	L	<i>sedlaceki</i> II

Remarks:

* CH= continental China; TA= Taiwan, JA= Japan, IN= India, NE= Nepal, TH= Thailand, FE= Far East of Russia, KO= Korea

**very sparse: interval between strigosites (i): $i \geq 0.03$ mm (VS), sparse: $0.01 < i \leq 0.02$ (S), dense: $i=0.01$ (D), very or extremely dense (sometimes opalescent): $i < 0.1$ mm (ED)

*** elytra not strigose, only traces of several transverse strigosites on shoulders

The species group *P. sedlaceki* is newly divided into two subgroups: *P. sedlaceki* I (7th antennomere normal) and *P. sedlaceki* II (7th antennomere strikingly enlarged).

***Pseudocolenis simplicornis* sp. nov.**

(Figs. 1-3)

Type material. Holotype (♂): "CHINA: Yunnan, mountain SE Gejiu, 23°18'27"N, 103°11'41"E, 2400 m, graveyard with pine, pine litter and herb roots sifted, 20.VIII.2014, leg. M. Schülke [CH14-13]" (MSBC). Paratypes (4 ♂♂, 10 ♀♀, 3 spec. sex indet.): the same locality data as in holotype (MSBC, ZSPC).

Description. Total length 2.6-3.7 mm, in holotype 3.1 mm, head 0.3 mm, pronotum 0.7 mm, elytra 2.1 mm, antenna 1.1 mm, aedeagus 0.9 mm. Maximum width of head 0.9 mm, pronotum 1.8 mm at base, elytra 1.9 mm at anterior fourth of elytral length.

Shape of body as in Fig. 1, dorsum brown-black, clypeus, lateral margins of pronotum and elytra reddish, femora and tibiae yellow-red, tarsi a little lighter, antennomeres I-IV yellow, AV-AVI infusate, AVII-AX brown, AXI light brown. Ventral side yellow-brown. Dorsal surface microsculptured by transverse strigosity on head, in traces also on pronotum and scutellum. Traces of several transverse strigosities on humeral part of elytra. Rest of elytra without microsculpture.

Head. With punctures irregularly distributed, spaced by about 3-5 times their own diameter. With four large punctures on vertex. Finely but distinctly, densely, strigose. Antennal club 5-segmented. Relative length of AII-AXI (AII = 1.0): 1.0 - 1.2 - 0.7 - 0.8 - 0.7 - 0.9 - 0.5 - 0.9 - 0.9 - 1.6. Relative width of AII-AXI (AII = 1.0): 1.0 - 1.0 - 0.8 - 1.0 - 1.0 - 1.5 - 1.3 - 2.0 - 2.2 - 2.0. AVII distinctly narrower than AIX and AX. W/L of AII-AXI = 0.5 - 0.4 - 0.6 - 0.6 - 0.7 - 0.8 - 1.3 - 1.0 - 1.1 - 0.6.

Pronotum. With unobtrusive puncturation, punctures much finer and smaller than those on head, minute, very sparsely scattered, separated by more than 10 times their diameter. Traces of extremely fine and dense strigosities. Posterior angles viewed dorsally acute, closely rounded on tip. In lateral view posterior angles obtuse with closely rounded tip. Base straight, slightly emarginate before angles.

Scutellum. With traces of transverse dense strigosities similar as those on pronotum.

Elytra. Without strigosity except traces of several transverse strigosities at shoulders. Well developed punctures arranged in nine distinct striae, those with exception of 1st (= sutural) stria not impressed. Strial punctures smaller toward lateral margin. Punctures separated by about 3-4 times their diameter longitudinally. Intervals puncturation much sparser and finer; punctures separated by about 8-10 times their diameter, tending to seriate. Sutural stria impressed approximately up to elytral basal sixth.

Mesoventrite. Type A.

Legs. Anterior TI-TIV a little widened, TI longer than TII, shorter than TIII and TIV together. Tibiae straight.

Genitalia. Aedeagus with median lobe very feebly bent in lateral view, dorsal view as in Fig. 2. Spermatheca sickle-shaped (Fig. 3).

Variability. Female protarsi slender. Dorsum of the paratypes yellow-brown to brown-black. AVI-AXI brown in the majority of the paratypes. Interval punctures almost or entirely of the same size and intensity as strial punctures.

Differential diagnosis. *Pseudcolenis simplicicornis* sp. n. is very similar in the morphological characters and in the shape of the genitalia to *P. neglecta* Angelini et Švec, 2000. It differs by presence of traces of pronotal microstrigosity while pronotum is smooth (except puncturation) in *P. neglecta*. The new species differs also by longer parameres and by terminal setae placed far one from the other. Basal and terminal parts of spermatheca form rectangular angel without constriction in the middle while the angle is blunt with distinct constriction in *P. neglecta*.

Name derivation. The Latin name of the new species reminds the antennomere VII that is of simple usual shape and size in male.



Figs. 1-3: *Pseudcolenis simplicicornis* sp. nov.: 1- dorsal view (holotype); 2- aedeagus dorsally (holotype); 3- spermatheca.

***Pseudcolenis distincta* sp. nov.**
(Figs. 4-6)

Type material. Holotype (♂): "CHINA: Yunnan, mts W Dongchuan, Sedan Snow Mountain Scenic Resort, 26°06'08"N, 102°54'46"E, 2620 m, secondary pine forest, litter, moss, and roots of herbs sifted, 14.VIII.2014, leg. M. Schülke [CH14-07a]", (MSBC). Paratypes (1 ♂, 6 ♀♀): the same locality data as in holotype (MSBC, ZSPC); (2 ♂♂, 7 ♀♀): CHINA: Yunnan, NE Kunming, 25°08'35"N, 102°53'49"E, 2320 m, mixed forest with alder, oak, and pine, litter and mushrooms sifted, 13.VIII.2014, leg. M. Schülke [CH14-06] (MSBC, ZSPC).

Description. Total length 3.0-3.6 mm, in holotype 3.4 mm, head 0.3 mm, pronotum 1.0 mm, elytra 2.1 mm, antenna 1.1 mm, aedeagus 0.5 mm. Maximum width of head 1.0 mm, pronotum 2.2 mm at base, elytra 2.3 mm at anterior fourth of elytral length.

Shape of body as in Fig. 4, dorsum chest-nut, legs yellow-red. Antennomeres I-VI yellow, AVII-AX brown, AXI yellow. Pronotum slightly opalescent. Dorsal surface entirely microsculptured by transverse strigosity.

Head. With punctures irregularly distributed, spaced by about 2-6 or more times their own diameter. Four large punctures on vertex. Distinctly, finely densely strigose. Antennal club 5-segmented. Relative length of AII-AXI (AII = 1.0): 1.0 - 1.1 - 0.5 - 0.5 - 0.5 - 1.5 - 0.7 - 0.9 - 1.1 - 1.8. Relative width of AII-AXI (AII = 1.0): 1.0 - 1.0 - 1.1 - 1.4 - 2.3 - 3.4 - 2.1 - 2.1 - 2.0 - 2.0. AVII widened, distinctly broader than AIX-XI. W/L of AII-AXI = 0.5 - 0.5 - 1.5 - 1.7 - 2.3 - 1.3 - 1.7 - 1.3 - 1.0 - 0.6.

Pronotum. With unobtrusive puncturation, punctures much finer and smaller than those on head, minute very sparsely scattered, separated by about 8-10 or more times their diameter. Pronotum strigose similarly as on head, strigosities finer. Posterior angles viewed dorsally acute closely rounded on tip. In lateral view posterior angles rectangular with closely rounded tip. Base straight, slightly emarginate before posterior angles.

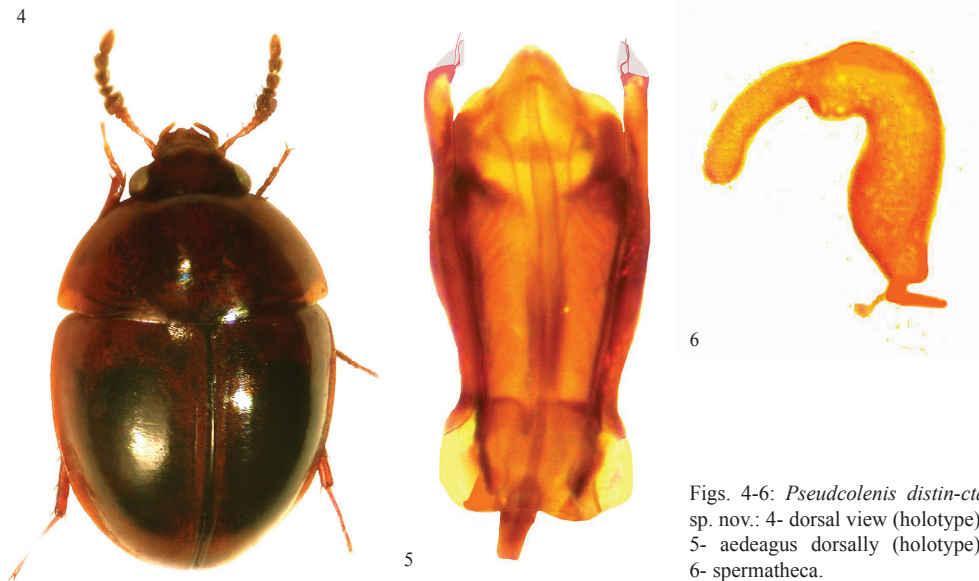
Scutellum. With transverse dense strigosities denser than those on elytra, sparser than those on pronotum.

Elytra. With sparse dense strigosity; strigosities separated at most by about 0.01 mm. Without punctured striae. Punctures irregularly distributed, separated by about 10 times their diameter or more. Sutural stria impressed approximately up to elytral basal fourth.

Mesoventrite. Type A.

Legs. Anterior TI a little broader than others. Tibiae straight.

Genitalia. Aedeagus stout with median lobe very distinctly bent, dorsally deflexed closely before apex, ventrally with lateral carina making ventral outline slightly convex in lateral view, in dorsal view of distinctive shape as in Fig. 5. Parameres with semi-transparent appendix and two terminal setae apically. Spermatheca as in Fig. 6, bent, swollen in the middle, similar to that in *P. dilatata* Angelini et Švec, 2000.



Figs. 4-6: *Pseudocolenis distincta* sp. nov.: 4- dorsal view (holotype); 5- aedeagus dorsally (holotype); 6- spermatheca.

Variability. Female protarsi slender. AVII as wide as AVIII, longer than AVIII, a little narrower than AIX -AXI in females.

Differential diagnosis. *Pseudcolenis distincta* sp. nov. is similar to *P. schneideri* Švec, 2003 from Nepal in morphological characters, especially in the shape of the body, its colour and mainly in the type of the pronotal and elytral strigosity. It differs by at least partly light coloured AXI, by AV strongly transverse that is at most as wide as long in *P. schneideri*. The outline of median lobe is arcuate before the apical part while the same is angulate in *P. schneideri*.

Name derivation. The name of the new species reminds the distinctive shape of the aedeagus in the species.

***Pseudcolenis atrobrunnea* sp. nov.**

(Figs. 7-9)

Type material. Holotype (♂): "CHINA: Yunnan [CH07-18]/ Baoshan Pref., mountain range/ 22 km S Tengchong, 1750 m/ 24°49'29" N, 98°29'27" E/ second. forest, litter, dead wood/ sifted, 2.vi.2007, leg A. Pütz" (SMTD). Paratypes (6 ♂♂): the same locality data as in holotype (SMTD, ZSPC).

Description. Total length 2.2-2.8 mm, in holotype 2.6 mm, head 0.4 mm, pronotum 0.7 mm, elytra 1.5 mm, antenna 0.9 mm, aedeagus 0.9 mm. Maximum width of head 0.7 mm, pronotum 1.5 mm at base, elytra 1.6 mm at anterior third of elytral length.

Shape of body as in Fig. 7, dorsum brown-black, clypeus, lateral margins of pronotum and elytra reddish, legs light reddish-brown, antennomeres yellow. Head and pronotum with slightly opalescent. Ventral side red-brown with darker longitudinal mesoventral carina and meso- and metacoxal margins. Entire dorsal surface microsculptured by transverse strigosity.

Head. With punctures very rare, very small and fine, puncturation hardly detectable. With four large punctures on vertex. Very finely, densely, predominantly transversely strigose. Eyes obtusively small. Antennal club slim, feebly expressed, 5-segmented. Relative length of AII-AXI (AII = 1.0): 1.0 - 1.2 - 0.6 - 0.6 - 0.6 - 0.9 - 0.4 - 0.7 - 0.7 - 1.2. Relative width of AII-AXI (AII = 1.0): 1.0 - 0.8 - 1.0 - 1.0 - 1.0 - 1.6 - 1.4 - 2.2 - 2.2 - 2.2. AVII distinctly narrower than AIX and AX. W/L of AII-AXI = 0.4 - 0.3 - 0.6 - 0.6 - 0.6 - 0.7 - 1.4 - 1.4 - 1.2 - 0.7.

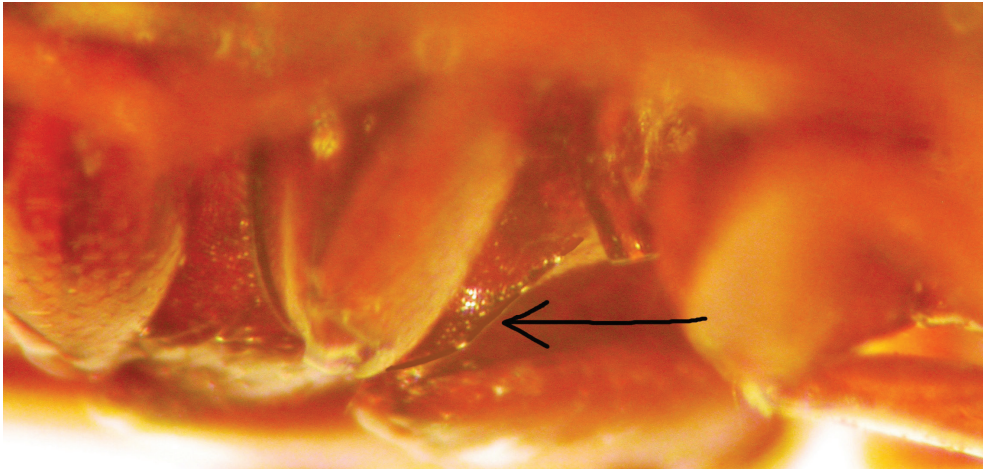
Pronotum. With puncturation similar as on head. Strigosites transverse, similar to those on head. Posterior angles acute, closely rounded on tip viewed dorsally. In lateral view, posterior angles slightly acute with closely rounded tip. Base straight, very slightly emarginate before angles.

Scutellum. Small, with traces of transverse dense strigosites similar as those on pronotum.

Elytra. With very sparse transverse well developed strigosity; strigosities separated by about 0.03 mm. Well developed punctures tend to seriate. Punctures separated by about 3-4 times their diameter transversely and longitudinally. Sutural stria impressed at posterior half of elytral length.



Figs. 7-9: *Pseudocolenis atrobrunnea* sp. nov. (holotype): 7- dorsal view; 8- aedeagus dorsally; 9- longitudinal mesoventral carina (indicated by arrow) in oblique view.



Mesoventrite. Longitudinal carina of type B, low, gradually falling (Fig. 9).

Legs. Anterior tarsi slim. Tibiae straight.

Genitalia. Aedeagus with median lobe very feebly bent with a little raised tip in lateral view, dorsal view as in Fig. 8. Female unknown.

Variability. The specimens of the paratype series vary in the body length only.

Differential diagnosis. *Pseudocolenis atrobrunnea* sp. nov. belongs to the informal species group *Pseudocolenis sedlaceki* characterized by the type of the mesoventral structures B. From all the up to now known species of this group it differs by the possession of narrow, low, gradually falling mesoventral longitudinal carina that is high, abruptly falling in all the rest species of the group (*Pseudocolenis carinata* Švec, 2009; *P. crassicornis* Švec, 2009 and *P. sedlaceki* Daffner, 1988). The new species differs from the species mentioned by the antennomere 7th that is normally developed, not strikingly widened.

Name derivation. The scientific name of the new species reminds the brown-black colour of the dorsum (from the Latin words ater = black and brunneus = brown).

ACKNOWLEDGEMENTS. My best thanks belong to my entomological colleague Michael Schülke (Berlin, Germany) and Olaf Jäger (Dresden, Germany) who provided me with valuable leiodid material.

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Received: 19.11.2015

Accepted: 25.12.2015

