New species of Pauropodidae (Myriapoda: Pauropoda) from Nanjing, China

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Abstract
Six new species in the family Pauropodidae are described from China: Allopauropus disphaeroides sp. n., A. crassescens sp. n., A. apicalis sp. n., A. nanjingensis sp. n., Pauropus dorsappendix sp. n., and Stylopauropus zijinensis sp. n.

Keywords: China, Myriapoda, new species, Pauropoda, Allopauropus, Pauropus, Stylopauropus

Introduction
The pauropods of China are poorly studied; among the five species and two indetermined species reported by Zhang and Chen (1988) only three from the Zhejiang Province are considered to be valid: A. (D.) ovalapendicis Zhang and Chen from Jinhua and Hangzhou, A. (D.) pilosisphaerus Zhang and Chen from Jinhua, and Pauropus longiramus Zhang and Chen from Jinhua Hangzhou, and Ningbo.

In 2005 and 2006, field trips were made in the Jiangsu Province, Dr. Sun Yat Sen’s Mausoleum and Zijin Mountain Memorial Park, and the Laoshan Forest Park on Laoshan Mountain, in the suburbs of Nanjing, situated in the lower reaches of the Yangtze River. The Zijin and Laoshan Mountains stretch to the south and north of the river, respectively (Figure 1). Berlese-Tullgren extractions of soil samples yielded more than 200 specimens. About 40 adult specimens collected in 2006 were observed, including six species in the Pauropodidae new to science; they are described herein.

The type specimens are deposited in the Institute of Genetic Resources, Nanjing Normal University, China. For the abbreviations used, see Appendix 1.
Systematics

Family PAUROPODIDAE Lubbock, 1867
Genus *Allopauropus* Silvestri, 1902
Subgenus *Decapauropus* Remy, 1957

*Allopauropus (Decapauropus) disphaeroides* Shen and Song sp. n.  
(Figure 2)

Type material

Holotype: ad. 9 (female), Zijin Mountain, 27 August 2006, leg. H. Shen et al. Paratypes: one ad. 9 (female), Zijin Mountain, 11 July 2006, leg. H. Shen et al.; one ad. 9 (male), Laoshan Mountain, 16 September 2006, leg. H. Shen et al.

Diagnosis

The new species may be close to *Allopauropus koreanus* Scheller, 1979 from North Korea. There are similarities especially in the structure of the pygidium, but the two species can be distinguished by the following characters: the shape of *st* (subcylindrical and glabrous in *A. disphaeroides*; a little clavate, curved inwards, converging, striate, with short pubescence in *A. koreanus*); the glabrous bands on the tergal side of the anal plate (two straight,
submedian, diagonal ones in *A. disphaeroides*; one short, straight, median one and two curved, sublateral ones, all longitudinally, in *A. koreanus*); the shape of the appendages of the anal plate (subspHERICAL, with long pubescence in *A. disphaeroides*; fusiform with sparse, short, oblique pubescence in *A. koreanus*). Moreover, the antennal setae *p* and *p’* and the proximal seta on the tarsi of the last pair of legs are proportionately longer in *A. koreanus* than in *A. disphaeroides*. 

**Figure 2.** *Allopauropus* (D.) *disphaeroides* sp. n. (a–c, f–i) Holotype female; (d, e) paratype male. (a) Head, right side, dorsal view; (b) pygidium, dorsal view; (c) left antenna, dorsal view; (d) genital papillae; (e) collum segment, median part, ventral view; (f) seta on coxa of leg 9; (g) seta on trochanter of leg 9; (h) tarsus of leg 9; (i) *T*₃.
Etymology
From the Greek *di-* two and *sphaera* = ball (referring to the appendages of the anal plate).

Description
Length. (0.64–)0.87(–0.89) mm.

Head. Tergal setae thin, tapering, of medium length to fairly long, densely annulate. Relative lengths of setae: 1st row: \(a_1=10\), \(a_2=11(–12)\); 2nd row: \(a_1=(7–)8\), \(a_2=(9–)10(–11)\), \(a_3=9(–10)\); 3rd row: \(a_1=(9–)10\), \(a_2=9(–10)\); 4th row: \(a_1=8(–10)\), \(a_2=7\), \(a_3=(6–)7(–8)\), \(a_4=10\). Ratio \(a_1/a_1–a_1\) in 1st row 1.4(–1.5), in 2nd row 2.8(–3.0), in 3rd row (1.4–)1.6, in 4th row 1.4. Length of temporal organs much longer than shortest interdistance. Head cuticle with distinct granules.

Antennae. Segment 4 with five setae, all thin, tapering, and annulate. Relative lengths of setae: \(p=100\), \(p'=65–67\), \(p''=30(–33)\), \(r=(34–)37(–39)\), \(u=7(19–20)\). Tergal branch \(t\) thin, 3.9 times as long as greatest diameter and 1.6(–1.9) times as long as sternal branch \(s\), the latter (1.4–)1.6 times as long as greatest diameter. Seta \(q\) with high insertion point, 0.6 length of \(s\). Relative lengths of flagella (base segment included) and base segments alone: \(F_1=100\), \(bs_1=10\); \(F_2=(32–)34\), \(bs_2=(3–)4\); \(F_3=(76–)78(–80)\), \(bs_3=8\). \(F_1\) twice longer than \(t\), \(F_2\) and \(F_3\) 1.2(–1.3) and 2.8(–3.1) times as long as \(s\), respectively. Globulus \(g\) 1.2 times as long as greatest diameter; width of \(g\) 0.7 of greatest diameter of \(s\).

Trunk. 4+4 setae on tergite I, 6+6 on II–IV, 6+4 on V, 4+2 on VI. Genital papillae short, blunt, 1.5 times as long as wide; distal seta with thick base.

Bothriotricha. Relative lengths: \(T_1=100\), \(T_2=(105–)110(–118)\), \(T_3=124(–130)\), \(T_4=(137–)140\), \(T_5=(145–)150(–156)\). All with simple straight axes and short oblique pubescence.

Legs. Coxa and trochanter of leg 9 with furcate setae; branches thick, subcylindrical, with short pubescence; secondary branch a little longer than primary one. Secondary branch rudimentary in anterior legs.

Tarsus of leg 9 slender, (4.0–)4.1 times as long as greatest diameter. Setae curved, with short oblique pubescence. Proximal seta long, thin, pointed, 0.4(–0.6) length of tarsus, 3.5(–3.7) times as long as distal seta.

Pygidium. Tergum: posterior margin rounded. Relative lengths of setae: \(a_1=100\), \(a_2=92(–94)\), \(a_3=(75–)93\), \(st=13(–15)\). All but \(st\) long, thin, with short, depressed-oblique pubescence; \(st\) subcylindrical, glabrous. Distance \(a_1–a_1\) 0.4 length of \(a_1\), distance \(a_1–a_2\) 0.9(–1.1) of distance \(a_2–a_3\); distance \(st–st\) 0.7(–0.8) length of \(st\) and 0.3(–0.4) of distance \(a_1–a_1\).

Sternum: posterior margin with median indentation below anal plate. Relative lengths of setae \((a_1=100)\): \(b_1=75(–77)\), \(b_2=(44–)46\). These setae long, thin, pointed and with short oblique pubescence. Distance \(b_1–b_1\) 0.8(–1.0) length of \(b_1\); distance \(b_1–b_2\) 0.2 length of \(b_2\).

Anal plate: subsquare, posterolateral corners rounded, posteromedian margin almost straight but with small V-shaped median indentation; three times longer than wide; posterolateral lobes with short-stalked subspherical appendages with proportionately long, thin, erect, pubescence. Posterolateral corners of plate with oblique glabrous bands on...
tergal side dividing plate into three parts: median part cordiform, with dense pubescence; anterolateral parts right-angled triangles with sparser long pubescence. Pubescence on sternal side similar to that on tergal side.

*Allopauropus (D.) crassescens* Shen and Song sp. n.

(Figure 3)

Figure 3. *Allopauropus (D.) crassescens* sp. n. (a–d, f–h) Holotype female; (e) paratype male; (i) paratype female. (a) Head, right side, dorsal view; (b) pygidium, dorsal view; (c) left antenna, dorsal view; (d) collum segment, median part, ventral view; (e) genital papillae; (f) tarsus of leg 9; (g) seta on coxa of leg 9; (h) seta on trochanter of leg 9; (i) *T₃*.
Type material

Holotype: ad. 9 (female), Zijin Mountain, 12 August 2006, leg. H. Shen et al. Paratypes: one ad. 9 (female), same data as holotype, one ad. 9 (male), Laoshan Mountain, 13 September 2006, leg. H. Shen et al.

Diagnosis

Allopauropus crassescens may be closely related to A. lituiger (Remy, 1957) from Australia and A. bispinosus (Scheller, 1995) from northwestern Thailand. They have distinct similarities in the shape and chaetotaxy of the pygidium. They can be distinguished by: (1) the shape of the tergal antennal branch (3.9 times as long as greatest diameter in A. crassescens; about twice longer than that distance in A. lituiger and 3.1 times as long in A. bispinosus); (2) the shape of the antennal globulus g (short-stalked in A. crassescens and A. bispinosus; proportionally long-stalked in A. lituiger); (3) the shape of the genital papillae in males (distinctly tapering in A. crassescens and A. bispinosus; roundedly conical in A. lituiger); the shape of the anal plate (trapeziform and with short posteromedian appendage in A. crassescens; subcordiform with short posteromedian appendage in A. bispinosus; roundedly hexagonal with evenly rounded posterior margin in A. lituiger).

Etymology

From the Latin crassescere = become swollen (referring to the submedian appendages of the anal plate).

Description

Length. (0.76–0.94 mm).

Head. Tergal setae thin, tapering, of medium length to fairly long, densely annulate. Relative lengths of setae: 1st row: a1=10, a2=7; 2nd row: a1=8, a2=6(–7), a3=7; 3rd row: a1=9, a2=7; 4th row: a1=(6–)7, a2=6, a3=(8–)9(–10), a4=8(–9). Ratio a1/a1–a1 in 1st row 3.5(–3.6), in 2nd row (1.3–)1.4, in 3rd row 0.6(–0.7), in 4th row 3.0(–3.2). Length of temporal organs much longer than shortest interdistance. Head cuticle glabrous.

Antennae. Segment 4 with four setae, all thin, tapering, annulate. Relative lengths of setae: p=100, p’=56(–57), p”=(80–)84 , r=(47–)50(–52). Tergal branch t 3.5(–3.7) times as long as greatest diameter and 1.4 times as long as sternal branch s, this 1.6 times as long as greatest diameter; anterior corner strongly truncated. Seta q 2.2(–2.4) times as long as s. Relative lengths of flagella (base segment included) and base segments alone: F1=100, bs1=10; F2=52(–58), bs2=5(–6); F3=(96–)98, bs3=(9–)10. F1 3.8(–4) times as long as t, F2 and F3 1.7(–1.8) and 3.2(–3.4) times as long as s, respectively. Globulus g 1.6 times as long as greatest diameter; width of g 1.1 times as long as greatest diameter of t.

Trunk. 4+4 setae on tergite I, 6+6 on II–IV, 6+4 on V, 4+2 on VI. Genital papillae distinctly narrowing distally, about twice as long as wide.

Bothriotricha. Relative lengths: T1=100, T2=(127–)132, T3=(155–)160(–165), T4=(163–)164, T5=(175–)180. All with simple straight axes with short oblique pubescence.
Legs. Coxa and trochanter of leg 9 with furcate setae; branches pubescent, thick, blunt; secondary branch shorter on coxa.

Tarsus of leg 9 slender, 3.9(–4.0) times as long as greatest diameter; setae subcylindrical, striate, proximal seta 0.3 length of tarsus and 3.0(–3.2) times longer than distal seta.

Pygidium. Tergum: posterior margin rounded, with low bulge projecting backwards above st. Relative lengths of setae: \( a_1=100, \ a_2=(200–)214(–218), \ a_3=(286–)300(–312), \) \( st=126(–132). \) \( a_1 \) short, broad, blunt, striate; \( a_2 \) and \( a_3 \) subcylindrical, striate; \( st \) clavate, bent inwards, with short pubescence. Distance \( a_1–a_1 \) 1.7(–1.9) times as long as \( a_1; \) distance \( a_1–a_2 \) 1.3(–1.5) times as long as distance \( a_2–a_3; \) distance \( st–st \) about 1.6 times as long as \( st \) and 0.6(–0.7) of distance of \( a_1–a_1. \)

Sternum: posterior margin with shallow indentation between \( b_1. \) Relative lengths of setae \( (a_1=100): \) \( b_1=(675–)686(–690), \ b_2=185(–190). \) \( b_1 \) and \( b_2 \) subcylindrical, striate. Distance \( b_1–b_1 \) 0.8 times as long as \( b_1, \) distance \( b_1–b_2 \) 0.8(–0.9) times as long as \( b_2. \)

Anal plate: trapezoid, with short pubescence, lateral corners rounded; posterior margin with median triangular process 0.2 length of plate. A paired bladder-shaped, pubescent appendage protruding from posterior margin of plate; appendage 0.6 length of plate.

**Allopauropus (D.) apicalis** Gai and Scheller sp. n.

(Figure 4)

Type material

Holotype: ad. 9 (female), Laoshan Mountain, 23 July 2006, leg. H. Shen et al. Paratypes: one ad. 9 (female), Zijin Mountain, 20 July 2006, leg. H. Shen et al.; one ad. 9 (male), Laoshan Mountain, 13 September 2006, leg. H. Shen et al.

Diagnosis

*Allopauropus apicalis* can be easily distinguished from all other members of the subgenus *Decapauropus* by the shape of the anal plate: semicircular with a small triangular bulge, glabrous.

Etymology

From the Latin *apex* = point (referring to the shape of the posterior part of the anal plate).

Description

Length. (0.88–)0.98 mm.

Head. Tergal setae thin, tapering, of medium length to fairly long, densely annulate. Relative lengths of setae: 1st row: \( a_1=10, \ a_2=9; \) 2nd row: \( a_1=11, \ a_2=8, \ a_3=9; \) 3rd row: \( a_1=10, \ a_2=8; \) 4th row: \( a_1=11, \ a_2=7(–8), \ a_3=7, \ a_4=9(–10). \) Ratio \( a_1/a_1–a_1 \) in 1st row 1.1, in 2nd row 1.5, in 3rd row 1.5, in 4th row 1.4. Temporal organs short, broad, length 1.2 times as long as shortest interdistance. Head cuticle glabrous.
Antennae. Segment 4 with five setae, all thin, cylindrical, densely annulate. Relative lengths of setae: \( p = 100, p' = 50(-54), p'' = (38-)40(-42), r = (36-)40, u = (17-)20. \) Tergal branch \( t \) 3.2 times as long as greatest diameter and 1.2 times as long as sternal branch \( s \); the latter 2.2 times as long as greatest diameter. Seta \( q 0.5(-0.6) \) length of \( s \). Relative lengths of flagella (base segment included) and base segments alone: \( F_1 = 100, b_3 = 11, F_2 = 27(-32), b_2 = 3, F_3 = (103-)105, b_3 = 10. \) \( F_1 \) 3.1 times as long as \( t, F_2 \) and \( F_3 \) 1.2(-1.4) and (4.3-)4.6 times as long as \( s \), respectively. Globulus \( g \) 1.3 times as long as greatest diameter; width of \( g \) 0.9 of greatest diameter of \( t \).
Trunk. 4+4 setae on tergite I, 6+6 on II–IV, 6+4 on V, 4+2 on VI. Genital papillae short, blunt, 1.8 times as long as wide, widest in middle.

Bothriotricha. Relative lengths: \( T_1 = 100 \), \( T_2 = 115(-120) \), \( T_3 = (118–120) \), \( T_4 = (124–126) \), \( T_5 = 140(-145) \). All with simple straight axes with short pubescence; the latter oblique proximally, erect distally.

Legs. Coxa and trochanter of leg 9 with furcate setae; branches thick, with short pubescence; branches subequal in length on coxa, secondary branch shorter than primary one on trochanter. Secondary branch rudimentary in anterior legs.

Tarsus of leg 9 slender, 4.4(–4.5) times as long as greatest diameter. Setae pointed, proximal one 0.5 length of tarsus and (3.0–)4.2 times as long as distal seta.

Pygidium. Tergum: posterior margin evenly rounded. Relative lengths of setae: \( a_1 = 100 \), \( a_2 = 105 \), \( a_3 = (159–162) \), \( st = 48(-50) \). Setae thin, subcylindrical, with short oblique pubescence; \( st \) clavate, bent inwards. Distance \( a_1-a_1 \) about as long as \( a_1 \), distance \( a_1-a_2 \) 5.7(–6.0) times as long as distance \( a_2-a_3 \); distance \( st-st \) 0.9(–1.0) length of \( st \) and 0.3 of distance \( a_1-a_1 \).

Sternum: posterior margin almost straight, with a broad rounded indentation between \( b_1 \). Relative lengths of setae \( (a_1 = 100) \): \( b_1 = 229(-234) \), \( b_2 = (134–140(-145) \). Setae thin, subcylindrical, with short oblique pubescence. Distance \( b_1-b_1 \) almost as long as \( b_1 \); \( b_2 \) 1.8 times as long as distance \( b_1-b_2 \).

Anal plate: semicircular, 1.5 times as wide as long, posterior margin with short median triangular process, length almost 0.5 length of plate.

Subgenus *Allopauropus* Silvestri, 1902

*Allopauropus (A.) nanjingensis* Shen and Scheller sp. n.

(Figure 5)

Type material

Holotype: ad. 9 (female), Zijin Mountain, 12 August 2006, leg. H. Shen et al. Paratypes: one ad. 9 (female), Laoshan Mountain, 13 September 2006, leg. H. Shen et al; one ad. 9 (male), Laoshan Mountain, 2 October 2006, leg. H. Shen et al.

Diagnosis

*Allopauropus nanjingensis* is well-defined in having proportionately long-stalk antennal globulus, an unusual differentiation of the pygidial setae, and in having an unusually large distance between the \( b_3 \) and two types of pubescence on the anal plate. Its relationships are impossible to trace at present.

Etymology

A latinization of the name Nanjing, China.

Description

Length. 0.89(–0.95) mm.
Head. Tergal setae thin, tapering, of medium length to fairly long, densely annulate. Relative lengths of setae: 1st row: \( a_1 = 10, a_2 = 8 \); 2nd row: \( a_1 = 11, a_2 = 20(-23), a_3 = 16(-18) \); 3rd row: \( a_1 = 8, a_2 = 12 \); 4th row: \( a_1 = 12, a_2 = (16-)18, a_3 = (14-)16, a_4 = 17(-20) \). Ratio \( a_1/a_1 \) in 1st row 1.1, in 2nd row 0.4(-0.5), in 3rd row 0.5(-0.7), in 4th row (0.8-)0.9. Head cuticle glabrous.
Antennae. Segment 4 with four setae, all thin, tapering, densely annulate. Relative lengths of setae: \( p=100, p'=63(\sim65), p''=(35\sim37)(\sim39), r=(30\sim33) \). Tergal branch \( t \) (2.9\sim3.0) times longer than greatest diameter and 1.8(\sim2.0) times as long as sternal branch \( s \), the latter 1.4(\sim1.6) times as long as greatest diameter. Seta \( q \) 1.8 times as long as \( s \). Relative lengths of flagella (base segment included) and base segments alone: \( F_1=100, b_1=10; F_2=54(\sim58), b_2=(5\sim6); F_3=94(\sim96), b_3=9. \) \( F_1 \) 2.4(\sim2.5) times as long as \( t \), \( F_2 \) and \( F_3 \) 2.2(\sim2.3) and 3.7(\sim3.9) times as long as \( s \), respectively. Globulus \( g \) 1.4(\sim1.5) times as long as greatest diameter; width of \( g \) 0.7 of greatest diameter of \( t \).

Trunk. 4+4 setae on tergite I, 6+6 on II–IV, 6+4 on V, 4+2 on VI. Submedian setae somewhat clavate; lateral ones cylindrical, blunt. Genital papillae conical, 2.6 times as long as wide.

Bothriotricha. Relative lengths: \( T_1=100, T_2=83(\sim90), T_3=(110\sim120), T_4=140, T_5=160(\sim167) \). All with simple straight axes and sparse pubescence proximally, denser distally.

Legs. Coxa and trochanter of leg 9 with furcate setae; branches subcylindrical, striate; secondary branch somewhat longer than primary one. Setae on legs 1–8 with rudimentary secondary branches.

Tarsus of leg 9 3.9(\sim4.0) times as long as greatest diameter. Setae thin, pubescent, pointed, proximal one 0.5 length of tarsus, (2.2\sim2.4) times as long as distal seta.

Pygidium. Tergum: posterior margin rounded with obtuse-angled triangular lobe projecting backwards posterior of \( a_1 \). Relative lengths of setae: \( a_1=100, a_2=48(\sim50), a_3=(110\sim113), st=24(\sim28) \). \( a_1 \) and \( a_3 \) thick, straight and tapering, with a few thick pubescence hairs; \( a_2 \) with sparse, long, thin pubescence; \( st \) cylindrical, diverging, with short pubescence. Distance \( a_1-a_1 \) 0.3(\sim0.4) length of \( a_1 \), distance \( a_1-a_2 \) 0.6(\sim0.8) of distance \( a_2-a_3 \); distance \( st-st \) 0.4(\sim0.6) length of \( st \) and 0.3(\sim0.4) of distance \( a_1-a_1 \).

Sternum: posterior margin rounded. Relative lengths of setae \( (a_1=100): b_1=(93\sim95), b_2=(59\sim62)(\sim63), b_3=(74\sim79) \). \( b_1 \) subcylindrical, with dense pubescence, \( b_2 \) and \( b_3 \) tapering, with more sparse pubescence. Distance \( b_1-b_1 \) 0.7(\sim0.8) length of \( b_1 \), \( b_1-b_2 \) 0.6(\sim0.7) length of \( b_2 \), \( b_3 \) 0.8(\sim0.9) of interdistance.

Anal plate: broadest anteriorly, subtriangular, posteriorly rounded, directed backwards-downwards; as long as broad, with short pubescence, and on tergal side also some long hairs arranged irregularly. Two long cylindrical appendages protruding backwards from sternal side, which is curved inwards, cylindrical, pubescent, 0.7 length of plate.

Genus Pauropus Lubbock, 1866

Pauropus dorsappendix Shen and Sun sp. n.
(Figure 6)

Type material
Holotype: ad. 9 (female), Zijin Mountain, 20 July 2006, leg. H. Shen et al. Paratypes: one ad. 9 (female), same data as holotype; one ad. 9 (male), Laoshan Mountain, 13 September 2006, leg. H. Shen et al.
Diagnosis

*Pauropus dorsappendix* seems to be most close to a group of species (*P. merinus*, *P. lauteli*, *P. antanosus*, *P. validus*, *P. fallaciosus*) described from Madagascar (Remy 1956), but the shape of the median part of the anal plate (submedian appendages cleft distally) and the length proportions of the pygidial setae (*a₁* and *a₂ > a₃) isolate the new species and its relationships cannot be disentangled.
Etymology
From the Latin *dorsum* = back and *appendix* = appendage (referring to the dorsal appendages of the anal plate).

Description

**Length.** (0.74–)0.96 mm.

**Head.** Tergal setae thin, tapering, of medium length to fairly long, densely annulate. Relative lengths of setae: 1st row: $a_1=10$, $a_2=11$; 2nd row: $a_1=17$–18, $a_2=11$, $a_3=15$; 3rd row: $a_1=17$, $a_2=(8–)9$; 4th row: $a_1=14$, $a_2=17$, $a_3=18$, $a_4=13$. Ratio $a_1/a_1$ in 1st row 1.8(–1.9), in 2nd row 0.8, in 3rd row 7.0(–7.2), in 4th row (2.8–)3.0. Temporal organs in tergal view short and broad, 1.2 times as long as shortest interdistance. Head cuticle glabrous.

**Antennae.** Segment 4 with four setae, all thin, tapering, densely annulate. Relative lengths of setae: $p=100$, $p'=74$–79, $p''=(86–)90$, $r=(26–)31$–34. Tergal branch $t$ thin, 4.7 (–5.0) times as long as greatest diameter and 1.4(–1.6) times as long as sternal branch $s$, the latter 3.0(–3.2) times as long as greatest diameter. Seta $g$ with high insertion point, 1.1 times as long as $s$. Relative lengths of flagella (base segment included) and base segments alone: $F_1=100$, $bs_1=10$; $F_2=88$–92, $bs_2=9$; $F_3=(75–)80$–84, $bs_3=8$; $F_1$ 1.4 times as long as $t$, $F_2$ and $F_3$ 1.8(–2.0) and (1.4–)1.6 times as long as $s$, respectively. Globulus $g$ with flattened capsule. Width of $g$ 0.8 of greatest diameter of $t$.

**Trunk.** 4+4 setae on tergite I, 6+6 on II–IV, 6+4 on V, 4+2 on VI. Genital papillae short, almost twice longer than wide, widest in middle.

**Bothriotricha.** Relative lengths: $T_1=100$, $T_2=(104–)110$–112, $T_3=(138–)150$–156, $T_4=170$–175, $T_5=(176–)180$. All with simple straight axes with short oblique pubescence.

**Legs.** Coxa and trochanter of leg 9 with furcate setae; branches thick, subcylindrical, with short pubescence; branches subequal in length on coxa, secondary branch somewhat longer than primary branch on trochanter. Setae on legs 1–8 cylindrical, blunt, with rudimentary secondary branch.

Tarsus of leg 9 3.6(–3.8) times as long as greatest diameter. Setae thin, pointed, with short pubescence; proximal seta 0.2 length of tarsus and 6.2(–6.5) times as long as distal seta.

**Pygidium.** Tergum: posterior margin with rounded lobe above $st$. Relative lengths of setae: $a_1=100$, $a_2=(84–)95$, $a_3=64$–72, $st=(11–)13$. All with short pubescence; $a$-group cylindrical, $st$ tapering. Length of $a_1$ 2.9(–3.0) times as long as interdistance, distance $a_1–a_2$ as long as distance $a_2–a_3$; distance $st–st$ 3.2(–3.4) times as long as $st$ and 0.5 of distance $a_1–a_1$.

Sternum: posterior margin with broad shallow indentation between $b_1$. Relative lengths of setae ($a_1=100$): $b_1=76$–81, $b_2=43$–46, $b_3=63$–67. These setae tapering, with short pubescence. Distance $b_1–b_1$ (0.8–)0.9 length of $b_1$; $b_1–b_2$ 0.5 length of $b_2$, distance $b_3–b_3$ 0.6(–0.7) length of $b_3$.
Anal plate: divided by a deep median U-shaped incision. Each half of plate divided into two parts by a V-shaped incision as deep as median one; lateral branches thick, diverging, pointed, 0.9 length of plate; submedian part cleft into two subcylindrical branches similar in length, each with distal, somewhat lanceolate shortly pubescent appendage.

**Genus Stylopauropus** Cook, 1896  
**Subgenus Donzelotauropus** Remy, 1957

**Stylopauropus (Donzelotauropus) zijinensis** Shen and Zhou sp. n.  
(Figure 7)

**Type material**
Holotype: ad. 9 (female), Zijin Mountain, 12 August 2006, leg. H. Shen et al.  
Paratypes: one ad. 9 (female), same data as holotype; one ad. 9 (male), Laoshan Mountain, 2 October 2006, leg. H. Shen et al.

**Diagnosis**
The peculiar shape of the anal plate, with four short tergal appendages and two long ones protruding from distal part of sternal side, is difficult to connect with other species in the genus. The relationships cannot be traced at present.

**Etymology**
The species is named from the type locality, Zijin Mountain.

**Description**

**Length.** (0.66–)0.76 mm.

**Head.** Tergal setae thin, tapering, of medium length to fairly long, densely annulate. Relative lengths of setae: 1st row: \( a_1=10, a_2=10(–11) \); 2nd row: \( a_1=8, a_2=6(–7), a_3=7 \); 3rd row: \( a_1=9, a_2=7(–8) \); 4th row: \( a_1=9(–10), a_2=11(–13), a_3=12(–13), a_4=10(–11) \). Ratio \( a_1/a_1–a_1 \) in 1st row 2.9(–3.0), in 2nd row 0.5(–0.6), in 3rd row 0.9(–1.1), in 4th row 1.1–1.2. Length of temporal organs 1.6(–2.0) times as long as shortest interdistance. Head cuticle glabrous.

**Antennae.** Segment 4 with four setae, all thin, tapering, densely annulate. Relative lengths of setae: \( p=100, p'=95(–60), p''=60(–63), r=27(–30) \). Tergal branch \( t (4.0–)4.1 \) times as long as greatest diameter and 1.6(–1.7) times as long as sternal branch \( s \), the latter twice as long as greatest diameter. Seta \( q \) 1.4 times as long as \( s \). Relative lengths of flagella (base segment included) and base segments alone: \( F_1=100, bs_1=10; F_2=65(–67), bs_2=7; F_3=20(–25), bs_3=3; F_1 4.5(–4.7) \) times as long as \( t, F_2 \) and \( F_3 2.6(–2.8) \) and (1.1–)1.2 times as long as \( s \), respectively. Globulus \( g 1.8 \) times as long as wide; width of \( g 0.9 \) of greatest diameter of \( t \).

**Trunk.** 4+4 setae on tergite I, 6+6 on II–IV, 6+4 on V, 4+2 on VI. Genital papillae blunt, almost 2.6 times as long as wide.
Bothriotricha. Relative lengths: $T_1 = 100$, $T_2 = (107–)110(–113)$, $T_3 = 140(–142)$, $T_4 = (178–)180$, $T_5 = (186–)190(–194)$. All with straight axes and sparse oblique pubescence.

Legs. Coxa and trochanter of leg 9 with furcate setae; branches thick, subcylindrical, striate, subsimilar in length on coxa, secondary branch shortest on trochanter. Setae on legs 1–8 cylindrical, blunt, with rudimentary secondary branch.

Figure 7. Stylopauropus (D.) zijinensis sp. n. (a–c, f–i) Holotype female; (d, e) paratype male. (a) Head, right side, dorsal view; (b) pygidium, sternal view; (c) right antenna, ventral view; (d) genital papillae; (e) tarsus of leg 9; (f) collum segment, median part, ventral view; (g) seta on coxa of leg 9; (h) seta on trochanter of leg 9; (i) $T_3$. New species of Pauropodidae 2327
Tarsus of leg 9 slender, four times longer than greatest diameter. Setae thin, pointed, with short pubescence; proximal seta twice longer than distal seta.

**Pygidium.** Tergum: posterior margin rounded, with low semicircular lobe between *st*. Relative lengths of setae: \(a_1=100, a_2=(88–)97, a_3=(132–)135(–141), st=18(–19)\). Setae \(a_1, a_2,\) and \(a_3\) cylindrical, \(st\) clavate, converging. Distance \(a_1–a_1\) 1.5(–1.6) times as long as \(a_1\), distance \(a_1–a_2\) 1.7(–1.9) times as long as distance \(a_2–a_3\); distance \(st–st\) 6.0(–6.2) times longer than \(st\) and about 0.7 of distance \(a_1–a_1\).

Sternum: posterior margin with shallow indentation between \(b_1\). Setae cylindrical with short pubescence, relative lengths \((a_1=100): b_1=(87–)88(–89), b_3=50(–51)\). Distance \(b_1–b_1\) 2.1(–2.2) times as long as \(b_1\). Distance \(b_3–b_3\) twice longer than \(b_3\).

Anal plate: semicircular, glabrous, posterolateral margin with four short appendages protruding backwards; sublateral appendages cylindrical, submedian ones short, triangular; two long appendages, 1.5 times as long as plate, protruding backwards from tergal side above triangular appendages; long appendages bipartite: proximal part cylindrical, glabrous, distal part fusiform, with short pubescence.

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**Appendix 1. List of abbreviations**

ad. 9, an adult specimen with nine pairs of legs.

**Head.** \(a_1,\) a submedian pair of setae on tergal side of head; \(a_2,\) an intermediate pair of setae on tergal side of head; \(a_3,\) a sublateral pair of setae on tergal side of head; \(a_4,\) a posterolateral pair of setae of head.

**Antenna.** \(bs,\) base segment of antennal flagellum; \(F_1,\) flagellum on tergal antennal branch; \(F_3,\) anterior flagellum of sternal antennal branch; \(F_3,\) posterior flagellum of sternal antennal branch; \(g,\) globulus of sternal antennal branch; \(p,\) a tergal seta on 4th antennal segment; \(p':\)
an anterior seta on 4th antennal segment; \( p' \), a sternal seta on 4th antennal segment; \( q \), a seta on sternal side of sternal antennal branch; \( r \), a posterior seta on 4th antennal branch; \( s \), sternal antennal branch; \( t \), tergal antennal branch; \( u \), a tergal seta on 4th antennal segment near base of tergal antennal branch.

**Trunk.** \( T_3 \), 3rd pair of bothriotricha.

**Pygidial tergum.** \( a_1 \), submedian pair of setae; \( a_2 \), intermediate pair of setae; \( a_3 \), (sub)lateral pair of setae; \( st \), styli.

**Pygidial sternum.** \( b_1 \), posterior pair of setae; \( b_2 \), lateral pair of setae; \( b_3 \), anterior pair of setae.