

A NEW SPECIES OF *PTENOTHRIX* FROM CHINA  
(COLLEMBOLA: DICYRTOMIDAE)

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ABSTRACT

A new species of Collembola, *Ptenothrix huangshanensis*, is described from China.

Key Words: Collembola Dicyrtomidae, *Ptenothrix*, China

RESUMEN

Una nueva especie de Collembola, *Ptenothrix huangshanensis* es dedscrita de China.

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Eight species of the genus *Ptenothrix* have been reported from China, *P. mirabilis* (Denis, 1929), *P. yunnanus* Itoh, 1993 and *P. jacobsoni* (Folsom, 1924) have been reported from South China and Taiwan province. Four additional species: (*P. balicrura*, *P. diinghuensis*, *P. palmisetaceus* and *P. sinensis*) were described by Lin & Xia (1985). In addition, *Ptenothrix aequituberculatus* Stach has been collected from Foochow China (Snider pers. comm.). A ninth species of the genus is described here.

*Ptenothrix huangshanensis*, sp. nov. (Figs. 1 and 2)

Length. Up to 1.9 mm.

Antennae purple with 4th segment and distal part of 3rd segment darker. Head and body background white to pale yellow, dorsal side with many dark and pale purple spots in different shapes. Head with a quadrilateral hollow spot posterior to each eyepatch. Dorsum of greater abdomen with one anterior and one posterior stripe on each side along median line, the latter consisting of 10 small rhomboid spots. Legs banded with pale purple pigment. Lesser abdomen lightly mottled with pale purple spots. Colophore white to pale yellow (Fig. 1A).

Eyes 8+8 in dark patches; ocelli F & G larger than others, H about 1/2 diameter of G-F. Vertical area with 7 spiny, pointed setae near eye patch on each side (setae letter designation after Yosii, 1963) (Fig. 1B). Facial setae arranged mostly as 1-1-2-2-1-1 and rarely 1-1-2-2-1. Lower frons with 1+1 cup sensilla. Labral setal pattern 6,5,5,4 (Fig. 1D). Ratio of antenna to head 11:5; mean antennal ratio 1:5:5:1; Ant. I with 6 dorsal setae; Ant. II with 2 dorsal and 1 ventral cup sensilla; Ant. III 8-subsegmented, each subsegment having 5-10 setae arranged in a whorl; Ant. IV divided into 5 subsegments with each subsequent bearing a whorl of setae (Fig. 1E).

First coxa with 1 anterior seta. Trochanter with 3 anterior and 1 posterior setae. Femur anteriorly with 7 setae and 1 distal cup sensillum, posteriorly 4 setae (Fig. 1F). Tibiotarsus anteriorly with 4 cup sensilla, 1 "*courte épine*", and 1 oval organ (Fig. 1G and H). Foot complex with 1 anterior and 1 posterior setulae; unguis without tunica, with 2 outer teeth, 6 small lateral basal teeth, 1 small lateral distal tooth and 1 very weak inner tooth; unguiculus with 1 very small spiniform corner tooth, tip of subapical filament slightly knobbed and reaching obviously beyond apex of unguis (Fig. 2B).

Mid coxa anteriorly with 3 setae and 1 "*courte épine*". Trochanter with 4 setae and 1 oval organ. Femur anteriorly with 8 setae, 1 oval organ and 1 cup sensillum, posteriorly 4 setae. Tibiotarsus anteriorly with 5 cup sensilla and 2 "*courtes épine*". Foot complex with 1 anterior and 1 posterior setulae; unguis without tunica, with 2 outer teeth, 5 lateral basal teeth, 1 lateral distal tooth and 2 very small inner teeth; unguicular corner tooth spiny, larger than that of fore foot, tip of subapical filament somewhat knobbed and exceeding apex of unguis. Hind coxa with 3 anterior setae and 1 posterior oval organ. Trochanter with 5 anterior and 1 posterior setae. Femur anteriorly with 10 setae, 1 cup sensillum, 1 "*courte épine*", and 1 distal oval organ, posteriorly 1 seta (Fig. 1I). Tibiotarsus anteriorly with 5 cup sensilla, 1 basal oval organ and 3 "*courtes épine*", (Fig. 1J and K); differentiated setae on posterior surface blunt and heavily serrated bilaterally, serration on each side consisting of 4-8 large teeth (Fig. 1L). Foot complex similar to and larger than that of mid leg, tip of subapical filament blunt but not knobbed (Fig. 2C).

Dorsum of greater abdomen with 4+4 bothriotrichia, A-B-C pattern triangular, A arising from a small prominence and horizontally pointing to head, D located near anogenital area; anterior 5 pairs of dorsal setae (AA-EE) large and spine-like, arranged in W-shape; surface of posterior central area wavy, with numerous short and dagger-like setae, about 1/5 × length of AA-EE; setae on posterior lateral areas slender and pointed, 2-3 × length of those in posterior central area (Fig. 2A). Ventral tube with 1+1

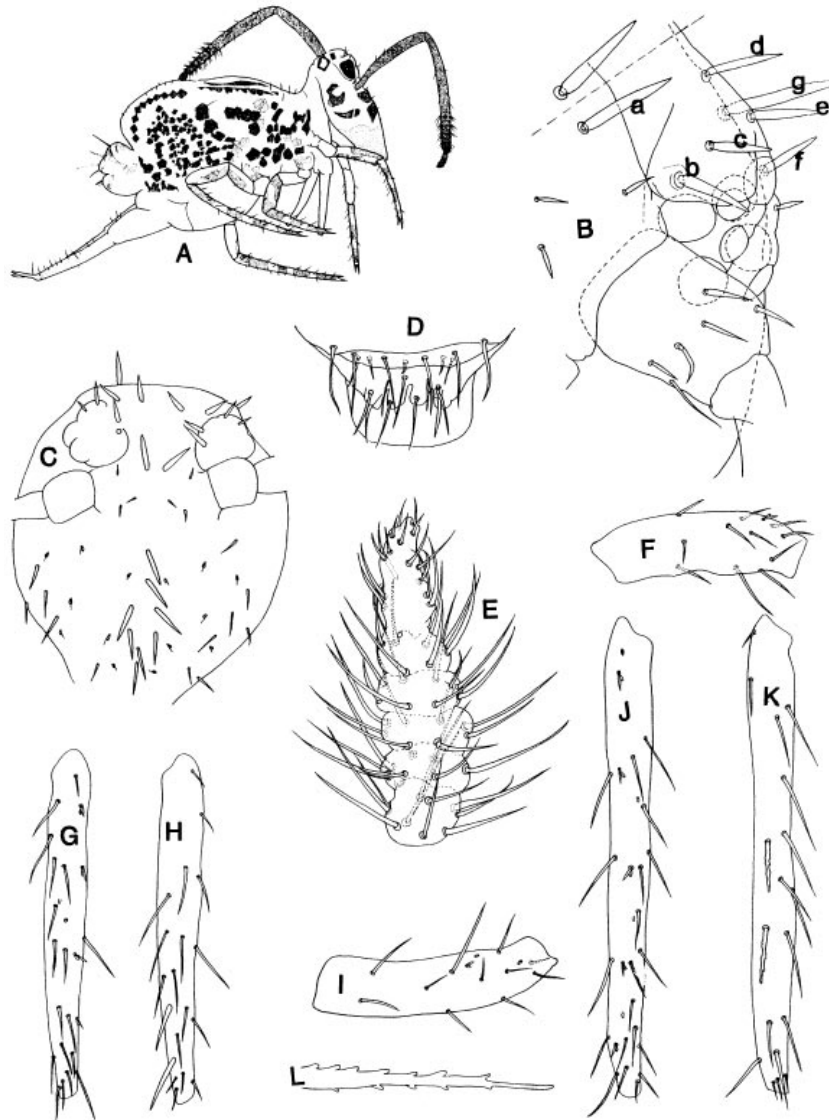


Fig. 1. *Ptenothrix huangshanensis* type specimens. A. habitus, B. right eye region, spines labelled, C. facial chaetotaxy seen from front, D. labral setae, E. 4th antennal segment, F. fore femur, G. fore tibiotarsus seen from front, H. fore tibiotarsus seen from rear, I. hind femur, J. hind tibiotarsus seen from front, K. hind tibiotarsus seen from rear, L. differentiated tibiotarsal seta.

subapical and 1+1 lateral setae, sacs warty. Corpus of tenaculum with 4 setulae, ramus with 3 teeth and basal horn (Fig. 2G). Manubrium with 8+8 dorsal setae (Fig. 2H); dens with 24 dorsal setae (Fig. 2D) and 3-2-1-1 . . . 1 ventral setae (Fig. 2E), basalmost about 1/2 length of others (Fig. 2E), dorsal setae  $E_9, E_{10}, L_9, L_{10}$  and  $d_1-d_4$  smooth, others basally serrated, distal setae  $E_1/E_2=0.80-1.80$  and  $E_3/E_2=1.9-2.90$  (Fig. 29); mucro with 28-31 inner and 21-29 outer teeth (Fig. 2D).

All circumanal setae smooth in both sexes except seta A1 finely ciliate in female. Setae M, M', N, H, T, and L. spine-like and blunt.  $A_0$  and  $S_a$  setaceous,  $A_0$  on a small papilla. G spiny and  $1/4 \times$  length of M' (Fig. 2I). Setal pattern as below:

M	N	T	H	G	$A_0$	$S_a$	L
3	2	+	+	+/-	-	-	+

Subanal appendages in female thick, acuminate and slightly curved. Female upper and lower anal valve glands complicated and similar to those in *P. kauaiensis* (Snider 1990).

Known only from type locality; in litter in mixed forest.

Holotype female, paratypes 3 females and 5 males on slides, 21 in alcohol. P.R. China: Anhui Province: Yellow Mt., 12-IX-1993, 8343, Jian-Xiu Chen coll. Deposited in the Department of Biology, Nanjing University.

The species is named after type locality—Yellow Mt. (Huangshan). “Huang”-yellow; “shan”-mountain in Chinese.

The subgeneric subdivisions of the genus *Ptenothrix* are presently so chaotic that we do not give subgeneric ascription for the present species. The subgenus *Papirioides* has generally been separated from the subgenus *Ptenothrix* by a swelling or indication of swelling on the posterior portion of the greater abdomen which is sometimes clear but often indicated only by a wrinkling of the integument, such as is seen in *huanshanensis*. In a forthcoming work, Gerhard Bretfeld (in press) separates *Ptenothrix* from *Papirioides* on a basis of a few large spines present in the latter while numerous short spines are present in the former. *P. huanshanensis* has the former condition which would place it in the subgenus *Ptenothrix*. Further complications are presented by the views of two other students of the group. Pierre Nayrolles has recently said “. . . probably *Papirioides* should be viewed as species of *Ptenothrix* with a hypertrophy of the dorsal swelling. In fact, the problem is more complicated. J-M Betsch told me he has observed in detail several *Ptenothrix*, according to him there are several lineages, each of them likely corresponds to a genus.” (Pers. communication). In view of all this we feel it best to give only a generic ascription to the species.

This species is closest to the Korean species *Ptenothrix monochroma* Yosii, 1963. They share almost all morphological characters, but can be easily distinguished by the differences in circumanal setal ratio and other characters as below:

	<i>P. huanshanensis</i>	<i>P. monochroma</i>
Antenna + Head	11/5	3/1
Ant. IV subsegments	5	2
Mucro outer teeth	28-31	47
Mucro inner teeth	21-29	36
Female circumanal setae M, M', N+A <sub>0,3</sub>	≥1.0	≤0.75
Body color	white to pale yellow with dark and light purple spots	uniformly light brown

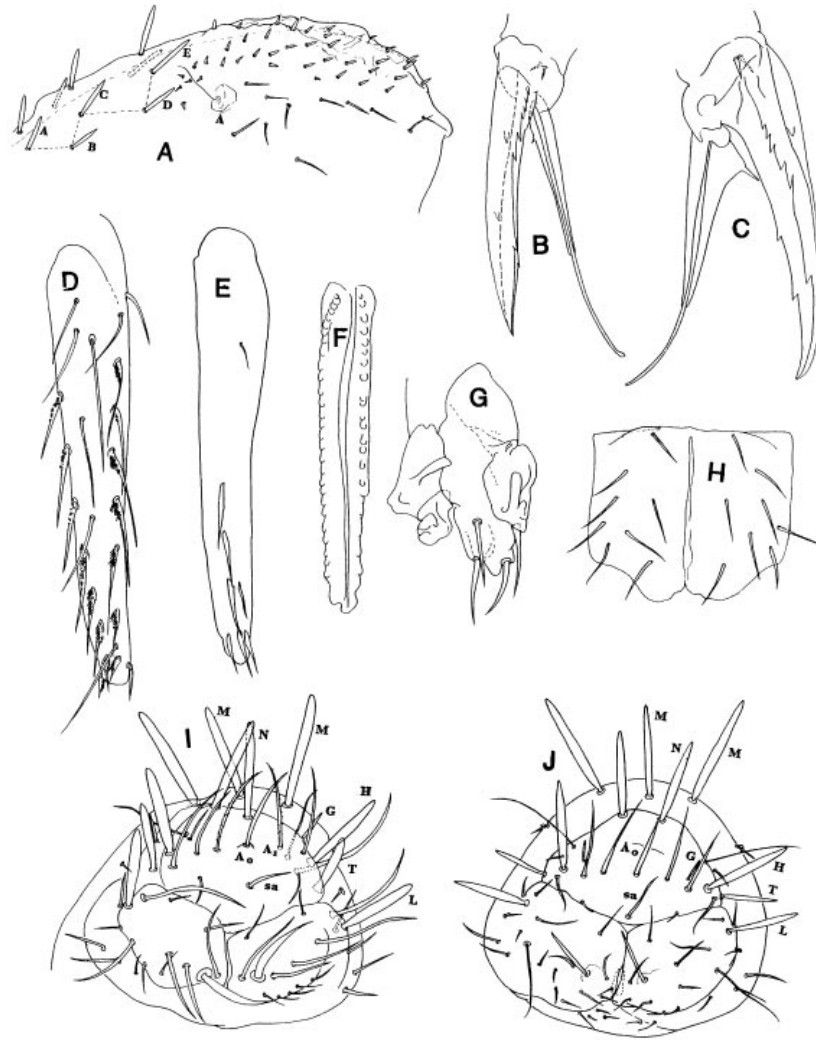


Fig. 2. *Ptenothrix huangshanensis* type specimens. A. dorsal chaetotaxy greater abdomen, B. fore foot complex, C. hind foot complex, D. dorsal dental chaetotaxy, E. ventral dental chaetotaxy, F. mucro, seen from above, G. tenaculum, H. manubrial chaetotaxy, I. female anogenital segment seen from rear, J. male anogenital segment seen from rear.

*Ptenothrix huangshanensis* is also similar in a number of features to the Thai species *P. brouquissei* Nayrolles. It differs from this species by having serrate inner dental setae, swollen apical filaments on the fore and mid unguiculi, much larger N setae on the sixth abdominal segment, serrate ungual lateral lamellae and a number of other features.

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