

A NEW SPECIES OF *ARRHOPALITES* FROM CHINA
(COLLEMBOLA: SMINTHURIDAE)

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ABSTRACT

A new species of *Arrhopalites* is described from China. It is distinguished by lack of eyes and absence of short spines on anogenital segment.

Key Words: Collembola Sminthuridae, *Arrhopalites*, China

RESUMEN

Una nueva especie de *Arrhopalites* es descrita de China. La especie se distingue por la falta de ojos y la ausencia de espinas cortas en el segmento anogenital.

A number of authors have described species of *Arrhopalites* from Asia (Nayrolles 1990, Yosii 1954, 1966a, 1966b, and 1970) but no species of *Arrhopalites* have previously been recorded or described from China. We describe the first Chinese species below. In the descriptions and figures we follow the system of tibiotarsal and third antennal segment chaetotaxy developed by Nayrolles (1987 & 1991) and the system of circumanal chaetotaxy shown in Christiansen & Bellinger 1996.

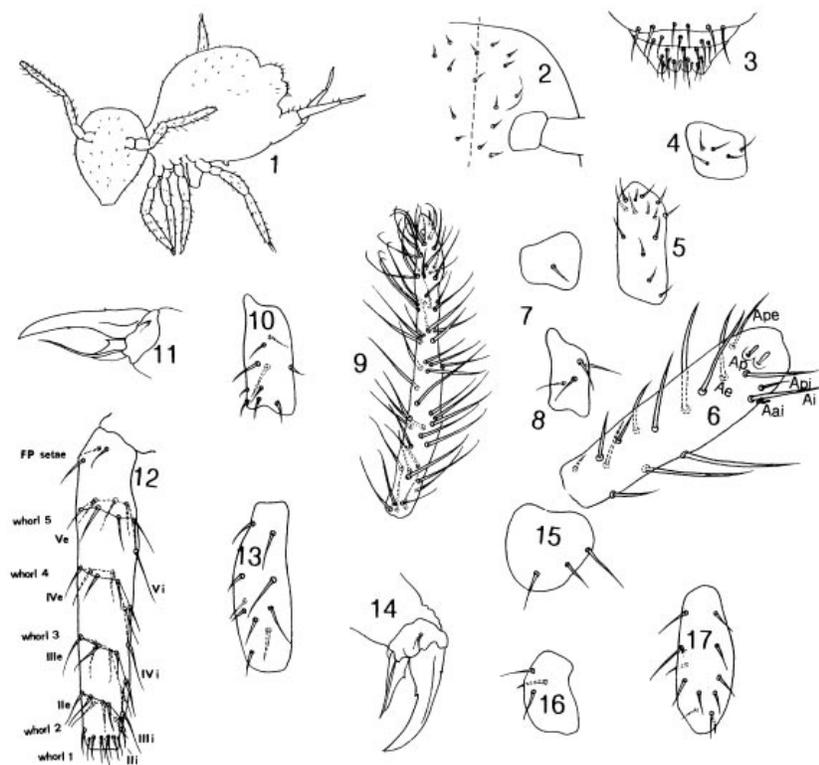
Arrhopalites pukouensis, sp. nov. (Figs. 1-27)

Length up to 1.30 mm.

Pigment completely absent (Fig. 1).

Eyes absent. Vertical setae slender and short (Fig. 2). Labral setal pattern 6, 5, 5, 4 (Fig. 3). Average ratio of antenna to head 4:3; antennal ratios 1: 1.63-1.73; 2.44-2.53; 4.88-5.2. Ant. I with 5 dorsal setae (Fig. 4); Ant. II with 14 setae, mostly on distal half (Fig. 5); Ant. III with setae Ai, Api, Ae, and Ape similar and acuminate with Ape only slightly smaller than others, seta Api short and acuminate, seta Aai short blunt and rod like (Fig. 6); Ant. IV not subsegmented; distal half thinner with setae verticillate from 3 or 4 slight thickenings; outer setae of distal 1/4 with tips strongly curved apically towards antennal axis; dorsally with a subapical paddle-shaped organ (Fig. 9). All antennal setae smooth.

All leg setae smooth and acuminate. First coxa with 1 anterior seta (Fig. 7). Trochanter with 2 anterior and 2 posterior setae (Fig. 8). Femur with 8 anterior and 2 posterior setae (Fig. 10). Pretarsus with 1 anterior and 1 posterior setulae, 1 outer and 1 inner tooth; unguiculus with 1 tiny corner tooth, acuminate subapical filament, not reaching apex of unguis (Fig. 11). Tibiotarsus with 3 FP setae, 8 setae in whorls 2 - 5 and 9 in whorl 1 (Fig. 12).



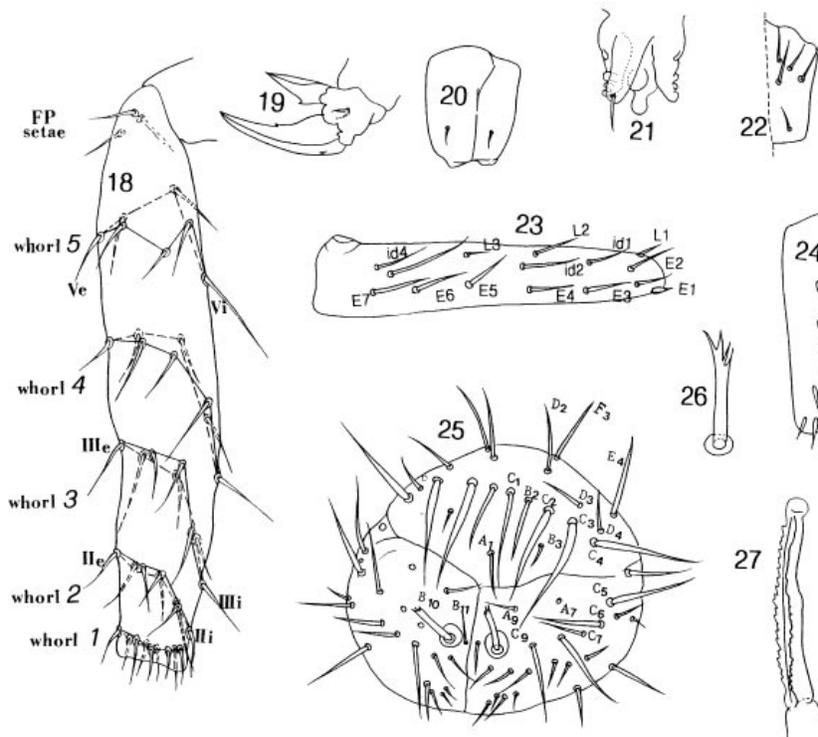
Arrhopalites pukouensis n. sp.

Fig. 1. Habitus; 2. Setae of vertex; 3. labral setae; 4. ant. I, dorsal view; 5. ant. II, dorsal view; 6. ant. III, dorsal view; 7. fore coxa, anterior view; 8. fore trochanter, anterior view; 9. ant. IV, dorsal view; 10. fore femur, anterior view; 11. fore pretarsus; 12. fore tibiotarsus, anterior view; 13. Mesofemur, anterior view; 14. middle pretarsus; 15. metacoxa, anterior view; 16. metatrochanter, anterior view; 17. metafemur, anterior view.

Middle coxa and trochanter each with 3 anterior setae. Femur with 8 anterior and 2 posterior setae (Fig. 13). Tibiotarsus similar to hind leg. Pretarsus similar to that of foreleg except subapical filament of unguiculus is much shorter (Fig. 14).

Hind coxa with 3 anterior setae (Fig. 15). Trochanter with 2 anterior and 1 posterior setae (Fig. 16). Femur with 9 anterior and 3 posterior setae (Fig. 17). Tibiotarsus with 3 FP setae, 7 setae in whorl 5, 8 setae in each of whorls 2-4 and 9 setae in whorl 1 (Fig. 18). Pretarsus as in fore leg. Unguiculus without subapical filament and broader than those of fore and middle pretarsus (Fig. 19).

Ventral tube with 1+1 subapical setae (Fig. 20). Corpus of tenaculum with 1 setula; ramus with 3 teeth and 1 basal appendix (Fig. 21). Manubrium with 5+5 dorsal smooth setae (Fig. 22). Dorsum of dens with setae E1-7, d1-3, id1 - 4 & L1-3 present. Only seta E1 is spinelike, L1,3 very short (Fig. 23); Ve setae on ventral dens as 3, 2, 1, 1, 1, (Fig. 24). Mucro with both dorsal edges irregularly serrated; distal part abruptly narrowed with tip rounded (Fig. 26). Circumanal setae C2-5 swollen basally,



Arrhopalites pukouensis n. sp.

Fig. 18. metatibiotarsus, anterior view; 19. hind pretarsus; 20. ventral tube; 21. tennaculum; 22. manubrium, right half, dorsal view; 23. left dens, dorsal view; 24. left dens, ventral view; 25. anogenital segment; 26. left mucro; 27. female subanal appendage.

C1 slightly swollen; C6, D2-4, E4 and F4 setaceous (Fig. 25). Female subanal appendage 4-forked apically (Fig. 27).

Known only in type locality: in soil at depth of 10-15 cm beneath surface.

Types: Holotype female; paratypes 1 female & 1 male. P. R. China: Jiangsu Province: Nanjing: Pukou: Longwangshan (Longwang Hill), IV-23-1995, locality No. 8449, Guo Jian-Ying coll. Deposited in Department of Biology, Nanjing University.

Etymology. Named after type locality: Pukou.

Arrhopalites pukouensis is found in soil at the depth of 10-15 cm beneath the surface rather than on surface or in caves as most known species in the genus. It is the second record of an eyeless Asian species of *Arrhopalites*. It differs from the eyeless Japanese cave-dwelling species *A. (Coecarrhopalites) antrobus* (Yosii 1954) in lacking the short spines on the valves of anogenital segment as well as in the shape of the subanal appendages.

This species has the 5 rows of heavy Ve setae characteristic of the group of species usually included in the subgenus *Coecarrhopalites* but as Ellis & Bellinger (1973) have pointed out this is an objective synonym of *Arrhopalites* and therefore not an available name. *A. pukouensis* lacks the short anal valve spines which has generally

been considered diagnostic for this group of species. This, along with conflicting characteristics of other recently described species, indicates that if this subgenus is to be resurrected (and renamed) it must be redefined.

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