

Discovery of the genus *Abalakeus* (Acari: Erythraeidae) in China and description of a new species from bamboo forests in Fujian, China

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Abstract

The genus *Abalakeus* Southcott, previously known only from Niger, West Africa, was discovered in China. *Abalakeus bambusae* Zhang **sp. nov.** is described from larvae collected on leaves of the moso bamboo (*Phyllostachys pubescens*) in Fujian.

Key words: Acari, Erythraeidae, *Abalakeus*, new species, bamboo.

Introduction

The genus *Abalakeus* was erected by Southcott (1994) for larvae of *Abalakeus chekei* Southcott, 1994 ectoparasitic on *Hieroglyphus daganensis* Krauss (Orthoptera: Acrididae) from sorghum millet in Tagalak, southwest of Abalak, Niger. The genus, placed in the subfamily Erythraeinae, is monobasic and is only known in West Africa. This paper describes a second species of *Abalakeus* from larvae collected on leaves of the moso bamboo (*Phyllostachys pubescens*) in Fujian, China. The discovery of *Abalakeus* in China suggests that this genus may be of a much wider distribution than is currently known.

The specimens were studied using a Nikon E800 microscope. Line drawings were prepared with the aid of a drawing tube attached to the microscope. Terminology is based on Grandjean's system as applied to the Parasitengona by Zhang (1998). Measurements were made in micrometers (μm) and were obtained from the holotype and 5 paratypes.

***Abalakeus bambusae* Z.-Q. Zhang sp. nov. (Figures 1-10)**

Description of larva: Slide-mounted specimens. Well or partially fed and flattened on the slide. Length of idiosoma 410-750, width 311-640. A relatively large mite as measured by the total length of 3 legs (IP = 3862-4537). Colour in life not recorded.

Prodorsal scutum wider than long, with slightly concave anterior margin and posterior margin (Fig. 1). Two pairs of centrally located trichobothria much thinner than two pairs of lateral barbed setae. Surface of scutum finely punctate. Anterior trichobothria (v_1) 50-59 long, with barbules on distal half. Anterolateral setae v_2 130-140 long, slightly anterior to the level of setae v_1 . Posterior trichobothria (sc_1) 95-103 long, with barbules on distal half; sc_1 located posterior to all other scutal setae; distance between their bases (sc_1 - sc_1 = 20-24), similar to or slightly greater than v_1 - v_1 . Posterolateral setae (sc_2) 106-120 long. Distance v_1 - sc_1 (75-80) greater than v_2 - sc_2 (60-70). Maximum length of scutum 115-140 and width at level of sc_2 143-180.

A pair of eyes posterolateral to scutum. Eye plates absent. Anterior eyes 24-30 in diameter, posterior eyes 20-25 in diameter.

Supracoxal seta I (eI) a small peg with rounded tip, 5 long (Fig. 1).

Dorsal hysterosoma hypertrichous with ca. 50 setae. Dorsal setae decreasing from 140 in anteromedial area to 100 posterolateral area (Fig. 1).

Ventral opisthosoma also hypertrichous with ca. 32 setae posterior to coxae III; length of setae decreasing from 120 near posterior margin to 60 in anterior area closer to level of coxae III (Fig. 2).

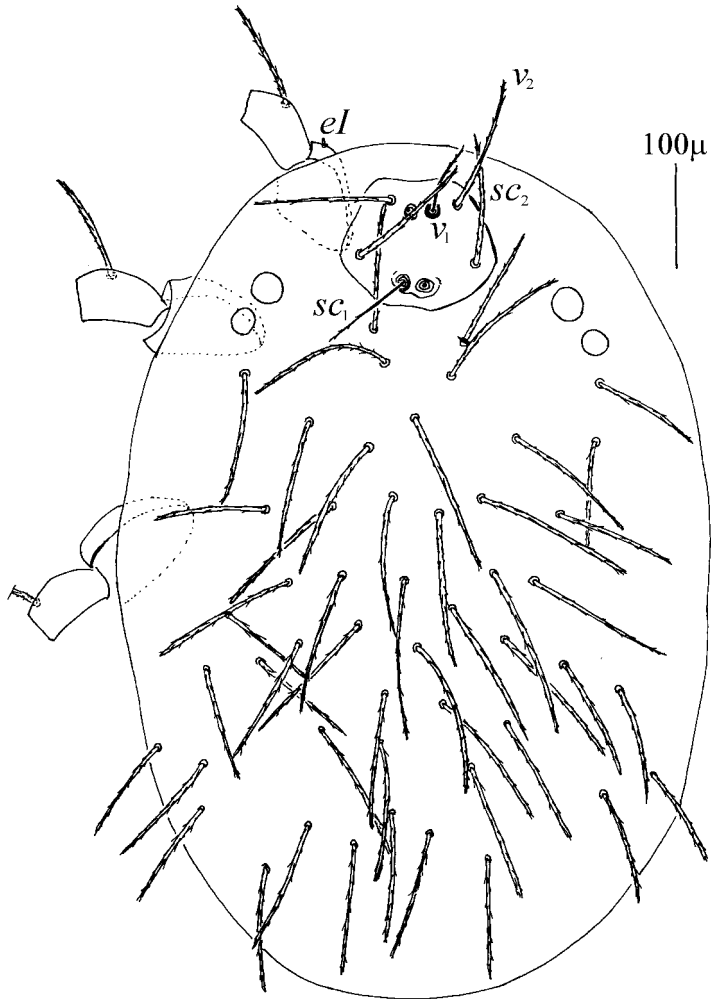


FIGURE 1. *Abalakeus bambusae* Zhang. **sp. nov.** (larva). Dorsal view of idiosoma.

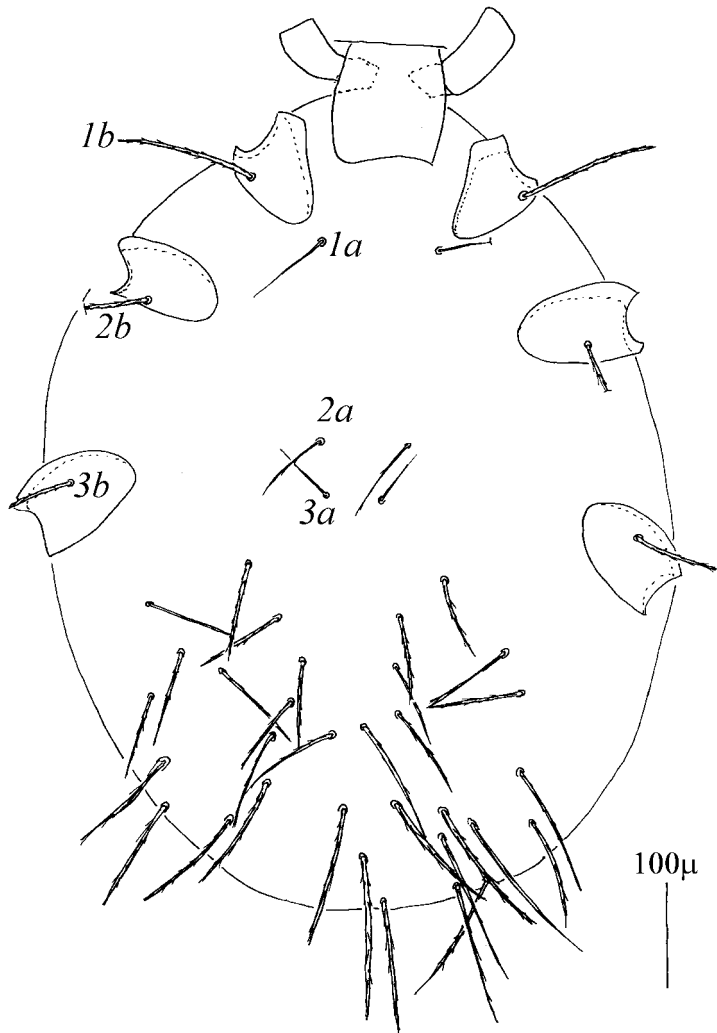


FIGURE 2. *Abalakeus bambusae* Zhang. **sp. nov.** (larva). Ventral view of idiosoma.

Coxal fields punctate. Coxal fields II and III not enclosed posteriorly by apodemes as coxal field I. Intercoxal setae *1a* 62-80 long, setiform and with a few short barbs (Fig. 2). Coxal setae *1b* (128-144 long), *2b* (43-45 long) and *3b* (60-68 long) similar to ventral opisthosomal setae in structure. Setae *2a* posteriorly displaced, 60-63 long. Setae *3a* 50-58 long.

Lengths of legs I, II and III 1259-1492, 1176-1357 and 1319-1708, respectively. Lengths of segments of legs I, II and III: trochanters 80-95, 80-100 and 80-100; femora 175-213, 170-185 and 162-235 (basi-) & 163-208, 150-188 and 188-225 (telo-); genua 218-270, 183-230 and 225-285; tibiae 325-413, 310-390 and 425-550; tarsi 205-230, 175-225 and 195-235.

Number of normal setae on segments of legs I, II and III (Figs. 3-8): trochanters 1-1-1, femora 2-2-1 (basi-) & 5-5-5 (telo-), genua 8-8-8, tibiae 15-15-14 and tarsi 27-23-25.

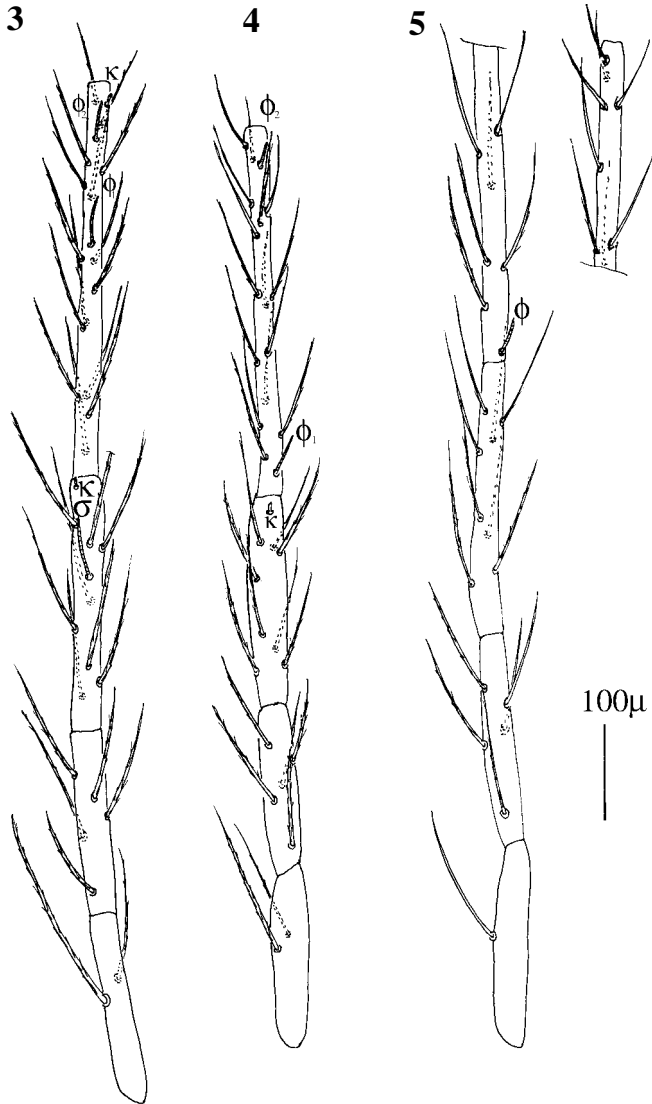
Normal setae on leg segments generally with short barbs. Companion setae associated with tectal eupathidia on tarsi I, tarsi II and palptarsi short (10-12 long) and nude.

Solenidia of legs: σ I 38-48 long, located 1/3 length of genu I; ϕ_1 I 42-46 long, located slightly distal to mid-tibia I, distal ϕ_2 I 22-32, proximal ϕ_1 II (30-38 long) longer than distal ϕ_2 II (18-27 long), proximal ϕ_1 III 25-36 long; ω I 30-35 long, located near mid-tarsus I, ω II 25-30 long, located slightly proximal to mid-tarsus II.

Eupathidia of legs: tectal ζ_1 I 32-35 long, with short barbs and coupled with a short companion seta, distal ζ_2 I 20-24 long, with short barbs; tectal ζ_1 II 35-38 long, with short barbs and coupled with a short companion seta, distal ζ_2 II 23-25 long, with short barbs.

Microsetae: κ of genua I-II 7-9 long, κ of tibia I 9 long, all rounded apically.

Famuli: famulus ϵ I minute, 2 long, located distal to ω I; ϵ II 2 long, located lateral or proximal to ω II.

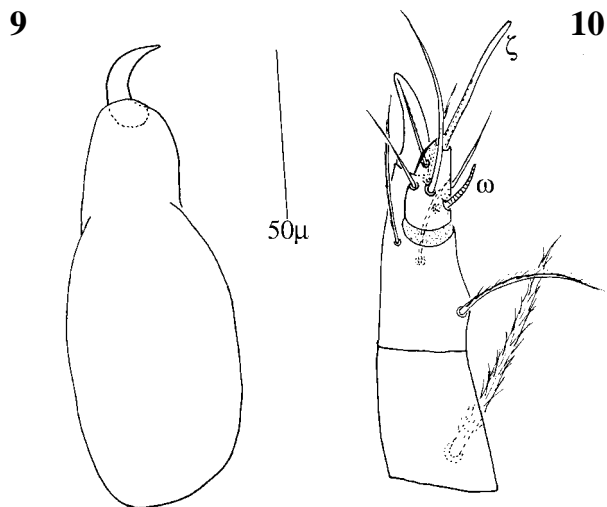


FIGURES 3-5. *Abalakeus bambusae* Zhang. **sp. nov.** (larva). 3, femur-tibia I; 4, femur-tibia II; 5, femur-tibia III.

Pretarsi of each leg bearing a median claw-like empodium, anterior feather-like claw with distal hook and a posterior feather-like claw without distal hook (Figs. 6-8).



FIGURES 6-8. *Abalakeus bambusae* Zhang. **sp. nov.** (larva). 6, tarsus I; 7, tarsus II; 8, tarsus III.



FIGURES 9-10. *Abalakeus bambusae* Zhang. **sp.nov.** (larva). 9, dorsal view of chelicera; 10, ventral view of palpal genu-tarsus. Dorsal prong of tibial claw not shown in this view.

Gnathosoma (Figs. 9-10). Cheliceral base strongly built, 114-116 long and 50-56 wide; its dorsal surface punctate. Cheliceral blade 21-23 across, with no obvious inner teeth (Fig. 9). Supracoxal seta of palp (*eP*) a small peg, 4-5 long. Palptrochanter 26-27 long, without setae. Palpfemur 70-74 long, with 1 heavily built, barbed dorsal seta. Palpgenu 40-45 long, with 1 heavily built, barbed dorsal seta. Palptibia 50-55 long, with 1 barbed dorsal seta and a pair of barbed lateral setae (1 external & 1 internal). Palptibial claw 35-41 long, two pronged with dorsal one smaller and more pointed. Palptarsus small, 20-23 long and 11-13 wide, with 5 nude setae, 1 basal solenidion ω (14 long) and 1 terminal ζ (40 long, coupled with a nude seta, 12 long). A pair of subcapitular setae nude, 28-44 long and bases 18-22 apart, anterior to level of insertions of palptrochanters. First pair of adoral setae (*or*₁)

nude, 30-35 long; second pair of adoral setae (or_2) nude, 8-12 long (or_2 sometimes obscured in some mounted specimens).

Adults and nymphs: Not collected.

Type specimens. Holotype larva (ZQZ990922-1a) and 5 paratype larvae (ZQZ990603-1b, c, d, e, f), collected by Jianwei Fu on 15 April 1997 from leaves of the moso bamboo in Nanping county, Fujian province, China. Holotype and four paratypes deposited in Institute of Plant Protection, Fujian Academy of Agricultural Sciences, Fuzhou, China. One paratype deposited in New Zealand Arthropod Collection, Landcare Research, Auckland, New Zealand.

Etymology: Named after the host plant.

Remarks. This species keys to *Abalakeus* based on the distinguishing characters of the genus (basifemur setal formula 2, 2, 1) defined by Southcott (1994). It differs from the type species *A. chekei* in lacking the solenidion on the femur of leg I, which is present in *A. chekei*. Southcott (1994) included the presence of a solenidion on the femur of leg I in *A. chekei* as one of features of the genus. The discovery of this second species of the genus suggests that this character should be of specific rather than generic importance. In addition to this difference, these two species are separable by the following key:

- 1 Anterolateral setae of scutum subequal in length to postero-lateral setae; distance between bases of anterior trichobothria on scutum as long as that of posterior trichobothria; tarsi I more than 50% longer than tibiae I; terminal eupathidium of palptarsus with a short coupled seta; distal solenidion of tibia I without a coupled seta . . .
 *Abalakeus bambusae* Zhang **sp. nov.**
- Anterolateral setae of scutum about twice as long as postero-lateral setae; distance between bases of anterior trichobothria on scutum about half as long as that of posterior trichobothria; tarsi I shorter than tibiae I; terminal eupathidium of palptarsus without a short coupled seta; distal solenidion of tibia I with a coupled seta
Abalakeus chekei Southcott

Notes on erythraeid fauna of China

There have been few reports on the fauna of the Erythraeidae in mainland China. The first study of the Erythraeidae in China was on the biology of *Abrolophus* sp. (Abrolophinae) in Huangtan county, Hunan province (Anonymous 1980). This species was recorded from bamboo leaves, wild chrysanthemum, broad bean, elm, day lily and cotton (Anonymous 1980), and also commonly found in orchards and weedy/vegetable fields; adults and nymphs prey on the egg of *Pectinophora gossypiella* Saunders, and other small arthropods on cotton (Zhao 1987). Zhang (1988) recorded larvae of *Leptus* sp. (Leptinae) ectoparasitic on tabanid flies in Mt. Tianmushan, Zhejiang. Zheng (1996a) described five species of larval *Leptus* from Hunan province. Zheng (1996b) described *Leptus zhuangensis* larvae ectoparasitic on the leaf beetle *Colaspoides opaca* Jacoby and *Charletonia hunanensis* larvae (Collidosomatinae) ectoparasitic on dragonflies in Hunan. This paper is the first report of the subfamily Erythraeinae from China. Four of the six subfamilies of the Erythraeidae are now known to be present in China. Most Chinese erythraeid species are waiting discovery.

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Abstract in Chinese

**中国阿赤螨属 *Abalakeus* Southcott 的发现
和福建毛竹林一新种记述**

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摘要: 阿赤螨属 *Abalakeus* Southcott 先前仅知尼日尔与西非, 最近在中国发现该属, 在福建毛竹叶片上采到一新种: 竹阿赤螨 *Abalakeus bambusae* Zhang sp. nov.

关键词: 蜱螨亚纲, 赤螨科, 阿赤螨属, 新种, 毛竹

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