BACULENTULUS XIZANGENSIS **SP. NOV.** FROM TIBET, CHINA (PROTURA: ACERENTOMATA, BERBERENTULIDAE) WITH A KEY TO THE GROUP OF *BACULENTULUS* SPP. WITH FORETARSAL SENSILLUM B'

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ABSTRACT

Baculentulus xizangensis **sp. nov.** from Tibet Autonomous Region, China is described. The new species is characterized by the presence of sensillum *b*' on foretarsus, short sensillum *a*', one pair of *A*-setae (’

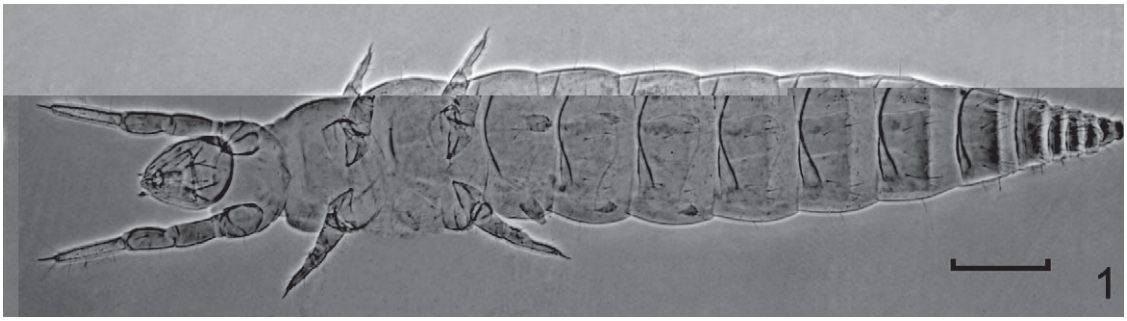


Fig. 1. *Baculentulus xizangensis* **sp. nov.** (holotype). Habitus. Scale bar: 100 µm.

zang), CHINA, N 31° 12' 21" E 96° 35' 10", 3,964 m asl, 14-VIII-2009, coll. W. J. Chen. Paratype. 1 male (no. XZ-P09028), collected from the soil sample between the rock beside the road, Tuoba town, Jiangda County, Changdu District, Tibet Autonomous Region (Xizang), China, 31° 17' 42" N 97° 30' 24" E, 3926 m elev., 12-VIII-2009, coll. W. J. Chen. Type specimens are deposited at Shanghai Entomological Museum (SEM).

Description

Adult body length 1050 µm (n = 2), pale yellow in color (Fig. 1).

Head. Elliptic, length 100 µm, width 75 µm. Setae *sd4* and *sd5* short and sensilliform, *sd6* absent (Fig. 2). Pseudoculus length 8 µm, PR = 12.5 (Fig. 3). Maxillary gland with smooth, heart-shaped calyx. Posterior filament of maxillary gland length 16 µm, CF = 6.4 (Fig. 4). Maxillary palps with 2 subequal sensilla (Fig. 5). Labial palps with 3 setae and one short, slender sensillum (Fig. 6). Frontal pore (*fp*) present on dorsal side of head (Fig. 2).

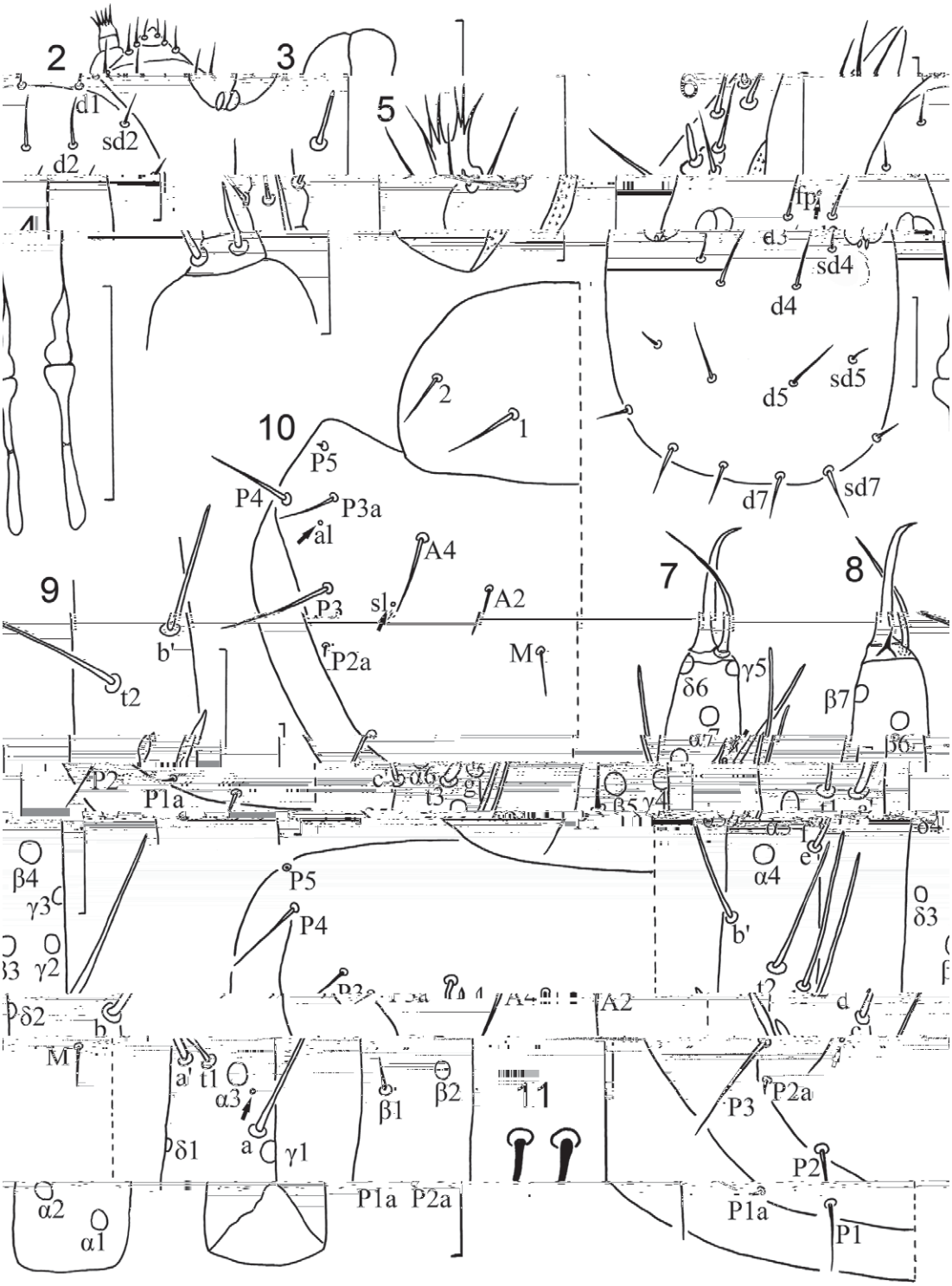
Foretarsus. Length 76 µm, claw length 16 µm, TR = 5.4; empodium length 5 µm, EU = 0.38. Dorsal sensillum *t1* baculiform, *t2* thin and long, *t3* short and lanceolate, BS = 0.50. All other sensilla slender, parallel sided, with exception of broad sensillum *a*'. Exterior sensillum *a* long, its apex reaching base of *d*, *b* and *c* on same level, *b* longer than *c* and surpassing base of *β*4, *d* closer to *c* than to *e*, *e* slender, *f* and *g* reaching base of claw. Interior sensillum *a*' broad, short, close to *t1*, not reaching base of *b*' (Fig. 9), *b*' short, its apex surpassing base of *δ*5, and *c*' short, its apex reaching base of *δ6*. (Figs. 7 and 8). Relative length of sensilla: *t3* < *t1* < *a*' < *b*' < (*g* = *c*') < *t2* < (*a* = *d*) < *e* < (*c* = *f*) < *b*. Seta *δ1* and *δ*4 setiform, 5 µm and 12 µm in length respectively. Pores present on exterior part of foretarsi near bases of seta *α3* and sensillum *g*. Claw slender, without inner flap. Empodial appendage 5 µm in length. Length of middle tarsus 35 µm, claw length 15 µm. Length of hind tarsus 37 µm, claw length 16 µm.

Thorax. Thoracic chaetotaxy formula given in Table 1. On pronotum, length ratio of *1*: *2* as 1.5:1. On meso- and metanotum, *A2* subequal to *M*, 8 µm in length. Accessory setae *P1a* and *P2a* on meso- and metanotum short and sensilliform (Fig. 11). Length ratio of *P1*: *P1a*: *P2* on mesonotum as 4.3: 1: 5.0. Seta *P5* on mesonotum pin-shaped, on metanotum rudimentary (Fig. 10). Setae *A2* and *M2* on prosternum, *A2* on meso- and metasternum sensilliform (Figs. 12-14). Mesonotum with pores *al* and *sl*, metanotum with pore *sl* only (Fig. 10). Pro-, meso- and metasternum without pores. (Figs. 12 and 13).

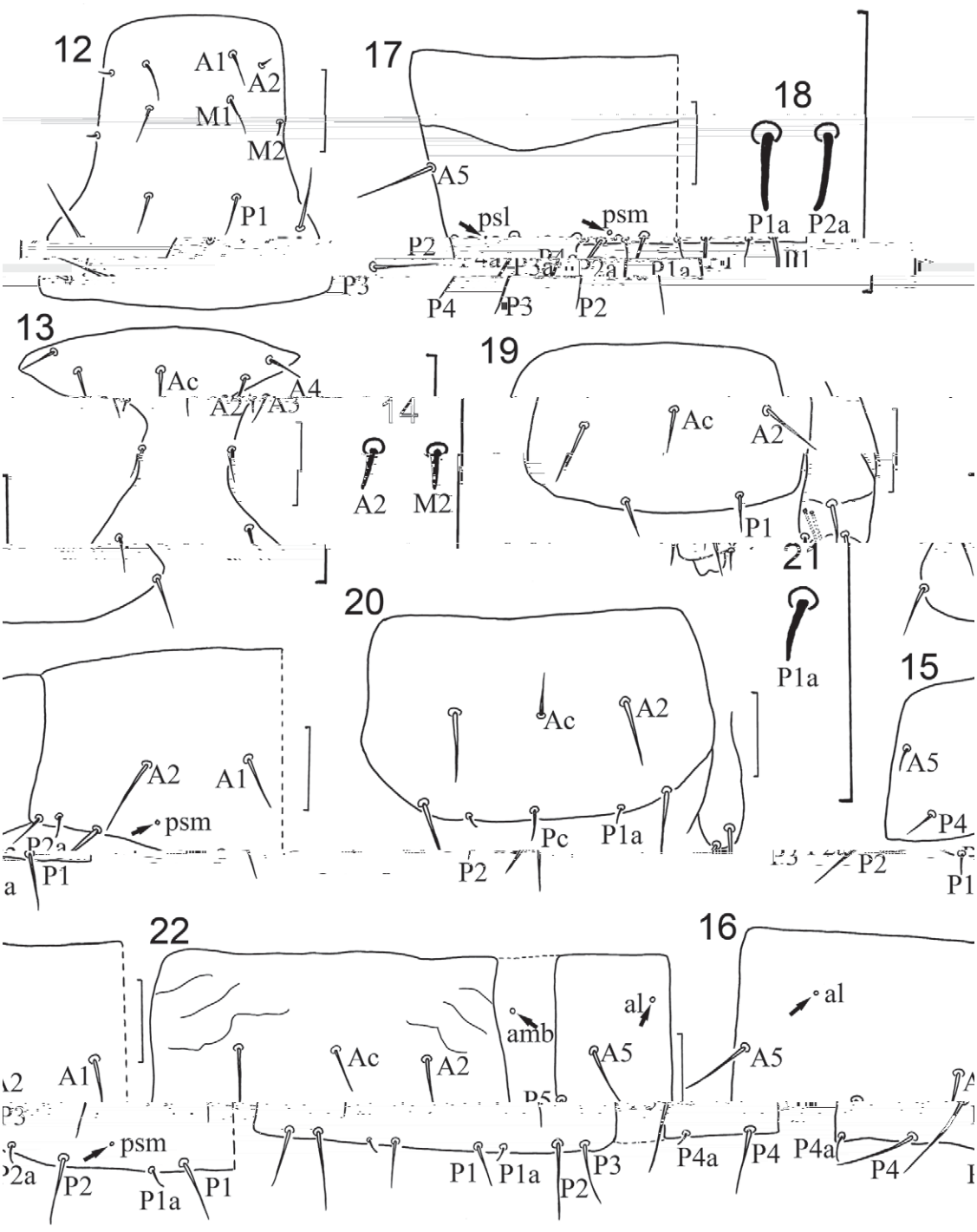
Abdomen. Abdominal chaetotaxy given in Table 1. Tergites I-VI with 3 pairs of anterior setae (Figs. 15 and 16), VII with one pair of anterior setae (Fig. 17). Seta *P3* on tergites II-VI anterior to other *P*-row setae (Fig. 16), and the same level with other *P*-row setae on tergites I and VII (Figs. 15 and 17). Sternite I with one pair of *P*-setae (Fig. 19). Accessory setae on tergites and sternites I-VII short, sensilliform (Figs. 18 and 21), 4- 5 µm in length.

Tergite I with pores *psm* (Fig. 15). Tergites II-VI with pores *psm* and *al* (Fig. 16), VII with pores *psm*, *psl* and *al* (Figs. 17 and 24). Pore *psm* on tergite VIII with several surrounding teeth (Fig. 26). Tergites IX-XI without pores, XII with single median pore on serrate line (Fig. 26). Sternites I-IV without pores (Figs. 19, 20 and 22). Membrane between tergites and sternites IV-VI each with 1+1 anteromembranal (*amb*) pore (Figs. 22 and 23). Sternites V-VI with a pair of pores close to *P1* (Fig. 23), sternite VII with single asymmetrically pore close to one of *P1* (Fig. 24), sternites VIII-XI without pores (Fig. 25). Sternite XII with 1+1 anterolateral pores (Fig. 25).

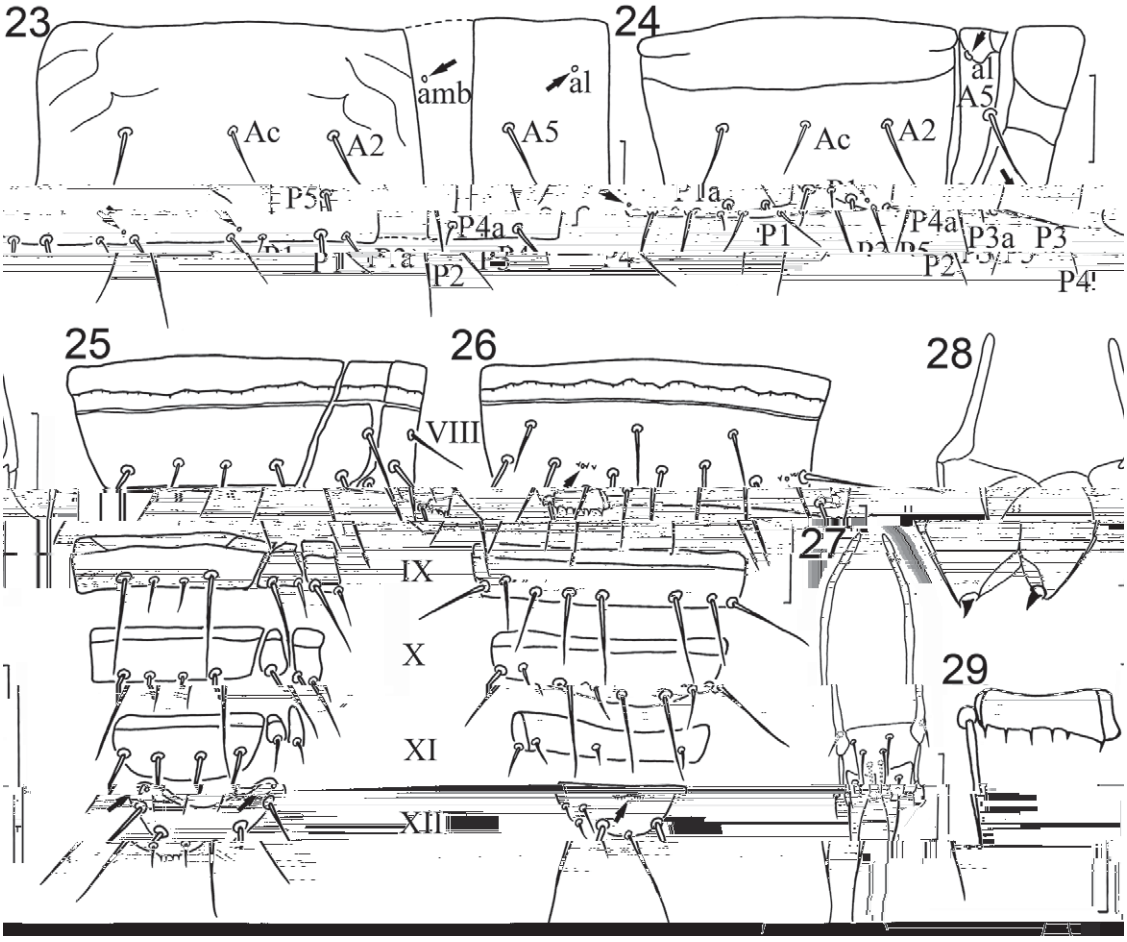
Abdominal appendages with 4, 2, 2 setae, 2 glands and 2 pores present on each of abdominal appendage I (Figs. 19 and 20). Length ratio of subapical and apical seta of second and third appendages as 1.9:1 (Figs. 20). Striate band on abdominal segment VIII reduced (Figs. 25 and 26). Comb on abdomen VIII rectangular, with 6 short teeth (Fig. 29). Lateral and posterior margins of tergites and sternites VIII-XI smooth. Hind mar-



Figs. 2-11. *Baculentulus xizangensis* **sp. nov.** (holotype). 2. head, dorsal view (*d1-d7* = dorsal setae; *sd2-sd7* = subdorsal setae; *fp* = frontal pore); 3. pseudoculus; 4. canal of maxillary gland; 5. maxillary palp; 6. labial palp; 7. foretarsus, exterior view; 8. foretarsus, interior view; 9. foretarsus, dorsal view show the position of *t1* and *a'*; 10. nota, left side (*sl* = sublateral pore; *al* = anterolateral pore); 11. accessory setae *P1a* and *P2a* on meso- metanotum. Arrows show pores, Scale bars: Fig. 11, 10 μm, others, 20 μm.



Figs. 12-22. *Baculentulus xizangensis* **sp. nov**. (holotype). 12. prosternum; 13. mesosternum; 14. setae A2 and M2 on prosternum and mesosternum; 15. tergite I, left side (psm = posterosubmedial pore); 16. tergite IV, left side (al = anterolateral pore); 17. tergite VII, left side (psl = posterosublateral pore); 18. accessory setae *P1a* and *P2a* on tergites I-VII; 19. sternite I; 20. sternite II; 21. accessory setae *P1a* on sternites II-VII; 22. sternite IV (amb = anteromembranal pore); Arrows show pores, Scale bars: 20 µm.



Figs. 23-29. *Baculentulus xizangensis* **sp. nov.** 23. sternite V; 24. sternite VII; 25. sternites VIII-XII; 26. tergites VIII-XII; 27. male squama genitalis; 28. female squama genitalis; 29. comb of tergite VIII. Fig. 27, paratype, others, holotype. Arrows show pores, Scale bars: 20 μm.

gin of tergite XII with few teeth. Seta *1* and *1a* on tergite IX length 15 and 22 μm respectively..

Male squama genitalis with 4+4 dorsal setae and 2+2 ventral setae (Fig. 27). Female squama genitalis with short pointed acrostyli (Fig. 28).

Etymology.

The species name was derived from Tibet Autonomous Region (Xizang) where the species were collected.

Distribution.

China (Tibet Autonomous Region).

Diagnosis.

Baculentulus xizangensis **sp. nov.** is characterized by the presence of sensillum *b*' on foretarsus, short sensillum *a*', one pair of *A*-setae (*A5*) on tergite VII, one pair of *P*-setae (*P1*) on sternite I, and comb with few teeth and straight hind margin.

Remarks.

Baculentulus xizangensis **sp. nov.** is similar to *B. ogawai* (Imadaté 1965) from Thailand, *B. numatai* (Imadaté 1965) from Nepal, *B. africanus* (Nosek 1976), *B. evansi* (Condé 1961) and *B. nyinabitabuens*is (Condé 1961) from Africa in having foretarsal sensilla *b*' present and only one pair of *A*-setae on tergite VII. It differs from *B. ogawai* in having one pair *P*-setae on sternite I (2 pairs in *B. ogawai* respectively), in the short sensillum *a*', not reaching base of *b*' (*a*' surpassing base of *b*' in *B. ogawai*), in the length of sensillum *b*', not reaching base of *c*' (*b*' surpassing base of *c*' in *B. ogawai*), and in the comb with few teeth

and straight hind margin (comb with 14 teeth and hind margin oblique in *B. ogawai*). It differs from *B. numatai* in one pair of *P*-setae on tergie I and 8 pairs of *P*-setae on tergites II-VI (2 and 9 pairs in *B. numatai*

—. Sternite I with 2 pairs of *P*-setae, sensillum *a*' surpassing base of *b*' . . . . . .*B. ogawai* (Imadaté, 1965); Thailand

5. Foretarsal sensillum *a* reaching base of seta *γ*3 . . . . . *B. africanus* (Nosek, 1976); Rwanda

—. Foretarsal sensillum *a* not reaching base of seta *γ*3 6

6. Small body size (800 µm), accessory setae on tergites about 1/4 length of principal setae . . . . . .*B. evansi* (Condé, 1961); Uganda

—. Large body size (1050 -1400 µm), accessory setae on tergites about 1/9 length of principal setae . . . . . .*B. nyinabitabuensis* (Condé, 1961); Uganda

7. Tergite I-VI with seta *P1a*' . . . . . *B. chiangmaiensis* Nakamura & Likhitrakarn, 2009; Thailand

—. Tergite I-VI without seta *P1a*' 8

8. Tergite VII with 4 pairs of *A*-setae . . . . . .*B. tuxeni* (Nosek & Hüther,1974); Brazil

—. Tergite VII with 3 pairs of *A*-setae 9

9. Foretarsal sensillum *b* short, not reaching base of seta *γ2* . . . . . .*B. becki* (Tuxen, 1976); Brazil

—. Foretarsal sensillum *b* long, surpassing base of *f* . . . . . *B. celisi* (Condé, 1955); Congo

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