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New species of *Sinella* and *Coecobrya* (Collembola: Entomobryidae) from New Caledonia

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Abstract

The genera *Sinella* and *Coecobrya* are reported from New Caledonia for the first time, with four new species: *Sinella quadriseta* **sp. nov.**, *S. claviseta* **sp. nov.**, *S. copiosa* **sp. nov.**, and *Coecobrya neocaledonica* **sp. nov.** *Sinella* species studied here exhibit several morphological features that are not found in other non-cave species of the genus: paired teeth on inner edge of unguis closer to the base and distal unpaired tooth very tiny or absent, 2 medio-medial and 1 medio-lateral macrochaetae on Th. II, 2+2 lateral macrochaetae on Abd. III, and abundant short S-chaetae on Abd. IV. The four S-chaetae present on Abd. V are also different from the common pattern in Entomobryidae. *C. neocaledonica* **sp. nov.** does not exhibit unique features different from *Coecobrya* species of other areas.

Key words: chaetotaxy, S-chaetae, Oceania

Introduction

The genera *Sinella* and *Coecobrya* are widespread around the world with more than 100 species reported. Both genera possess 4-segmented antennae without apical bulb, reduced number of ocelli (0–6 each side), pigment reduced or absent, absence of dental spines and scales, and polymacrochaetotaxy. Mucro is bidentate in *Sinella* and falcate in *Coecobrya* (Deharveng, 1990; Chen & Christiansen, 1993; Zhang *et al.*, 2009). So far, nine species are recorded from Oceania: *S. castanea* (Salmon, 1949) and *S. pulverafusca* Salmon, 1941 from New Zealand, *S. termitum* Schött, 1917, *S. samueli* Chen, Leng & Greenslade, 2005, *C. communis* Chen & Christiansen, 1997, *C. tenebricosa* (Folsom, 1902) and *C. tropicalis* Qu, Chen & Greenslade, 2007 from Australia, *C. papuana* (Yosii, 1971) from New Guinea, *C. aokii* (Yoshii, 1995) from Vanuatu. Two genera are reported here for the first time from New Caledonia, with 4 species new to science.

Material and methods

Specimens were cleared in lactic acid, mounted under a coverslip in Marc André II solution, and studied using a Nikon E600 microscope. Photographs were enhanced with Photoshop CS5. The labial chaetae terminology follows Gisin's system (1967). The dorsal and ventral chaetotaxy of head and the Ant. III organ are described after Chen & Christiansen (1993). Dorsal body chaetae are designated following Szeptycki (1979) and Zhang *et al*. (2011). The number of macrochaetae is given by half-tergite in the descriptions (left side of tergites drawn in figures). Type material is deposited in the collections of the College of Plant Protection, Nanjing Agricultural University (NJAU), P. R. China and Museum National d'Histoire Naturelle (MNHN), Paris, France.

Abbreviations: Th.—thoracic segment; Abd.—abdominal segment; Ant.—antennal segment; mac—macrochaeta, -ae; mes—mesochaeta, -ae; mic—microchaeta, -ae; ms—S-microchaeta, -ae (microsensillum, -a); sens—ordinary tergal S-chaeta, -ae (sensillum, -a).

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Discussion

The three *Sinella* species from New Caledonia exhibit a set of features different from other species of the genus. Ungual structure somewhat resembles that of cave species, with paired teeth on inner edge closer to the base and the distal unpaired tooth reduced or absent. Outer tooth on unguiculus in *S. claviseta* **sp. nov.** and *S. copiosa* **sp. nov.** is slightly smaller than those in other species. The medio-medial chaetotaxic pattern (m1, m1i) on Th. II is observed for the first time in the genus. The presence of 1+1 (m4) mac is also different from others except *S. longiungula* Zhang & Deharveng, 2011. The pattern of 2+2 (pm6, p6) lateral mac on Abd. III only occurs in *S. colorata* Zhang, Qu & Deharveng, 2010 besides the three species described here. The number of short S-chaetae on Abd. IV is also more than those in other species (usually 2). Four S-chaetae per side on Abd. V depart from the standard pattern (3+3) of entomobryids. The long-term isolation of New Caledonia from other islands and mainland may be at the origin of the differentiation of this species-group.

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