Five new eyed species of \textit{Sinella} (Collembola: Entomobryidae) from China, with a key to the eyed species of the genus

FENG ZHANG
Department of Entomology, College of Plant Protection, Nanjing Agricultural University, Nanjing 210095, P. R. China.
E-mail: xmtld.zf@gmail.com

Abstract

Five new eyed species of \textit{Sinella} from China, respectively with 3, 3, 2, 1, 1 ommatidia on each side, are described here: \textit{S. longisensilla} sp. nov., \textit{S. yui} sp. nov., \textit{S. pseudobrowni} sp. nov., \textit{S. sacellum} sp. nov. and \textit{S. gracilis} sp. nov. Clypeal chaetae and chaetae along cephalic groove exhibit differences among these species and could be used to distinguish species in \textit{Sinella} and \textit{Coecobrya}. A key to the eyed species of the genus is given.

Key words: ommatidium, clypeal chaetae, chaetotaxy, S-chaetae

Introduction

The genus \textit{Sinella} is characterized by 4-segmented antennae without apical bulb, reduced eye number (0–6 each side), pigment reduced or absent, polymacrochaetotic chaetotaxy, absence of dental spines and scales, and bidentate mucro. Deharveng (1990), Chen & Christiansen (1993), and Zhang et al. (2009, 2011) made great contributions to its modern taxonomy. A total of 27 \textit{Sinella} species have been recorded from China. Here, five new eyed species of the genus are described; the number of eyed \textit{Sinella} species increases to 22 in China and 41 in the world. Clypeal chaetae and chaetae along cephalic groove are also explored among five species. A key to the eyed species of \textit{Sinella} from the world is given.

Material and methods

Specimens were mounted, after clearing in lactic acid, under a coverslip in Marc André II solution, and were studied using Nikon E600 and SMZ-1000 microscopes. Photographs were enhanced with Photoshop CS2/PC (Adobe Inc.). The Ant. III organ is 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 left half-tergite in the descriptions. All material is deposited in the collections of the Department of Entomology, College of Plant Protection, Nanjing Agricultural University (NJAU), P. R. China.

Abbreviations: omma—ommatidium, -a; Th. I–III—thoracic segment I–III; Abd. I–VI—abdominal segment I–VI; Ant. I–IV—antennal segment I–IV; mac—macrochaeta, -ae; mic—microchaeta, -ae; S—antennal sensillum, -a; ms—s-microchaeta, -ae (microsensillum, -a); s-chaeta, -ae—ordinary sensory chaeta, -ae on head and body.

Taxonomy

All five new species share the below characters, which are not repeated in subsequent species descriptions: smooth spiny mic at base of antennae 3 dorsal, 3 ventral on Ant.I, 1 internal, 1 external and 1 (2 in \textit{S. sacellum} sp. nov.) ventral on Ant.II; dorsal Ant.II with a distal expanded S; S of subapical organ on Ant.IV thin, distally slightly
- Omma at most 2+2 .......................................................... 30
- Dental smooth part more than 5 times of mucro in length .......................................................... 25
- Dental smooth part less than 4 times of mucro in length .......................................................... 26
- Tenent hair III bifurcate; body length of adults about 1 mm .................................................. hexophthalma Rapoport & Rubio, 1968 (Chile)
- Tenent hair III clavate; body length of adults more than 1.5 mm .................................................. recens Christiansen & Bellinger, 1998 (USA)
- Abd.III with 3+3 central mac .................................................. sexoculata (Schött, 1896) (USA)
- Abd.III with 1+1 central mac .................................................. 27
- Abd.IV with 3+3 central mac .................................................. 28
- Abd.IV with more than 6+6 central mac .................................................. 29
- Body pigmented; 4 sublobal hairs on maxillary outer lobe; Abd.I with 5+5 mac .................................................. 30
- Inner differentiated tibiotarsal chaetae apparently “smooth”; Abd.I with 4+4 mac .................................................. longisensilla sp. nov. (China)
- Tenent hairs clavate; tibiotarsus without rows of “smooth” differentiated chaetae .................................................. 31
- Omma 2+2 ........................................................................ 32
- Omma 2+2 ........................................................................ 33
- Omma 1+1 ........................................................................ 34
- Omma 1+1 ........................................................................ 35
- Unguis without unpaired inner teeth .................................................. nigropunctata (Imms, 1912) (India)
- Unguis with 1–2 unpaired inner teeth .................................................. 32
- Mucronal basal spine long reaching at midway between two teeth .................................................. curviseta Brook, 1882 (worldwide)
- Mucronal basal spine short; at most slightly exceeding tip of subapical tooth .................................................. 33
- Tibiotarsus without rows of “smooth” differentiated chaetae .................................................. 34
- Tibiotarsus with rows of apparently “smooth” differentiated chaetae .................................................. 35
- Two omma arranged in a longitudinal row .................................................. browni Chen & Christiansen, 1993 (China)
- Two omma arranged in a transverse row .................................................. quadrioculata Mills, 1935 (USA)
- Tenent hairs clavate; Abd.IV with 3+3 central mac .................................................. barri Christiansen, 1960 (USA)
- Tenent hairs pointed .................................................. 36
- Tenent hairs pointed .................................................. 37
- Abd.III with 3+3 central mac .................................................. 38
- Abd.III with at most 2+2 central mac .................................................. aera Christiansen & Bellinger, 1980 (USA)
- Abd.III with 1+1 central mac .................................................. 39
- Abd.III with 2+2 central mac .................................................. 40
- Two omma separate from each other; Abd.IV with 7+7 central and 6+6 lateral mac .................................................. plebeia Chen & Christiansen, 1993 (China)
- Two omma close to each other; Abd.IV with 3+3 central and 5+5 lateral mac .................................................. pseudobrowni sp. nov. (China)
- Labial chaetae as MMRELL; Abd.III with 3+3 central mac .................................................. binoculata (Schött, 1896) (USA)
- Labial chaetae as MRELL; Abd.III with 1+1 central mac .................................................. 40
- Tenent hairs pointed; tibiotarsus with rows of apparently “smooth” differentiated chaetae .................................................. fayensis Chen & Christiansen, 1993 (China)
- Tenent hairs clavate; tibiotarsus without rows of “smooth” differentiated chaetae .................................................. samueli Chen, Leng & Greenslade, 2005 (Australia)

Acknowledgements

The present study was supported by the National Natural Sciences Foundation of China (31101622).

References


http://dx.doi.org/10.1080/00305316.1993.10432236


