Koponenius gen. nov., a new genus of the millipede family Haplodesmidae from the Himalayas of India and Nepal (Diplopoda: Polydesmida)

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Abstract

The first, apparently westernmost indigenous representatives of Haplodesmidae are reported, from the Himalayas of Nepal and India. Both new species belong to a new genus, Koponenius gen. nov., with K. unicornis sp. nov., the type species from Darjeeling District, NE India, and K. biramus sp. nov., from Nepal. The new genus is superficially very similar to Prosopodesmus Silvestri, 1910, most species of which seem to be native to tropical Australia, partly also to southern Japan. However, Koponenius gen. nov. is easily distinguished in showing only 19 body segments, a special ozopore formula (5, 7–18), 4 transverse rows of setigerous isostictic tubercles per postcollum metatergum, and a clearly helicoid, twisted prefemoral portion of the gonopod so that the seminal groove runs mostly laterally, not mesally.

Key words: Diplopoda, Haplodesmidae, taxonomy, new genus, new species, key, Nepal, India

Introduction

The rather small East Asian to Australasian millipede family Haplodesmidae has recently been reviewed and shown to contain 70+ species from 6 accepted genera (Golovatch et al. 2009a, 2009b, 2010; Mesibov 2009, 2012, 2013; Liu & Tian 2013). Of them, 40 currently belong to the largest and especially widespread genus Eutrichodesmus Silvestri, 2010, which ranges from southern Korea, southern Japan and Taiwan in the northeast, through southern continental China, Indochina, Malay Peninsula and Indonesia, to New Guinea and Melanesia in the southeast. Thus, the indigenous distribution of this genus largely repeats that of the entire family, except for its absence from Australia.

Few haplodesmid species have attained larger distributions and this is through human introductions, e.g. the largely pantropical Cylindrodesmus hirsutus Pocock, 1889, Prosopodesmus jacobsoni Silvestri, 1910 and P. panporus Blower & Rundle, 1980 (Golovatch et al. 2001; Mesibov 2012). Most species have localised distributions, including many species that seem to be troglobites (Golovatch et al. 2009a, 2009b; Liu & Tian 2013). The westernmost indigenous records of Eutrichodesmus, and of Haplodesmidae, were previously in the Yunnan Province, southern China (Golovatch et al. 2009a, 2009b). All the more important is the discovery of two new haplodesmids from the Himalayan regions of Nepal and India, both these species being epigean and representing a new genus. A new key is provided to all 7 currently known genera of Haplodesmidae.

Material and methods

Part of the material treated below had been taken in Nepal and long ago sent to us for identification by Jochen Martens (Mainz University, Germany). Additional samples, from India, have recently been provided by Konstantin Tomkovitch (Moscow, Russia). The holotype and most of the paratypes of the Nepalese species are housed in the Senckenberg Museum, Frankfurt/M. (SMF), Germany, with only a few duplicates deposited in the collection of the
Key to the known genera of Haplodesmidae, based mainly on male characters:

1. Body more or less pygromesidmid-like, not capable of volvation, with rather well developed and strongly declivous paraterga. Head largely invisible from above, being concealed under a large, flabellate, usually clearly lobulated collar. Ozopores usually borne on porostoles

   2. Body either vermiform, subcylindrical, not capable of volvation and devoid of paraterga starting from segment 3 or “doratodesmid”, with or without mid-dorsal projections, but always with well-developed and strongly declivous paraterga, typically capable of complete conglobation. Porostoles mostly absent.  


   4. Collum’s fore margin either regularly rounded and only vaguely lobulated or with a prominent median projection at fore margin. Body with 19 segments. Postcollum metaterga with 4 transverse rows of tuberculations. Only distal halves of gonopod telopodites curved caudad, uni- or biramous, seminal groove running mostly on lateral side, terminating on a simple and slender solenomere devoid of a hairy pulvillus.  

   5. Body “doratodesmid”, with or without mid-dorsal projections; mostly capable of complete conglobation, with paraterga 2 always very strongly enlarged laterally, all following paraterga more or less strongly declivous while collar somewhat reduced. Gonopods usually rather elaborate.  

   6. Body with 19 (male) or 20 (female) segments, collum and all following metaterga with abundant setation in part represented by long, bisegmented, tactile setae. Gonopods especially simple; telopodite = solenomere sometimes with a lateral outgrowth at midway; seminal groove terminating subapically and devoid of a hairy pulvillus.  

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