



Description of *Chaetocladius longivirgatus* sp. n., with a review of *C. suecicus* (Kieffer) (Diptera: Chironomidae)

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Abstract

The male imago of *Chaetocladius longivirgatus* sp. n. is described and diagnosed against a refined characterization of the species understood as *C. suecicus* (Kieffer) since Edwards (1929). The two species are separated by both morphology and partial COI sequences (DNA barcodes). An additional single male specimen shows pairwise genetic distances to *C. suecicus* and *C. longivirgatus* sp. n. as high as those between the latter two species, thus may represent a third European member in this species group. Morphologically, however, that male is inseparable from those of *C. suecicus*.

Key words: new species, Orthoclaadiinae, taxonomy, morphology, DNA barcoding

Introduction

The immature stages of species in *Chaetocladius* Kieffer, 1911 are found in a wide variety of semiaquatic and truly aquatic habitats, mainly in alpine, arctic or subarctic areas of the Holarctic and Afrotropical regions (Cranston *et al.* 1989). More than 40 scientifically named species are currently recognized in the genus, 26 in Europe (Sæther & Spies 2004). However, *Chaetocladius* on the whole as well as a number of species within it have been in dire need of revision for a long time.

Freshwater research programs often generate a wealth of material, including previously undiscovered species, even in relatively well-investigated environments. Such a surveillance program was set up in the 1980s for the Atna River in the northeastern part of southern Norway that flows from about 1400 m a.s.l. in the Rondane Mountains to its discharge into the Glomma River at 338 m. Due to the survey's efforts to obtain long-term series of physical, chemical and biological data, much information on macroinvertebrates has been collected (Sandlund & Aagaard 2004). To obtain an impression of the faunal composition of that area, Malaise traps were set up at various altitudes from end of May to the beginning of October in 1986, and again during the same season in 2008. The adult chironomids have been processed comprehensively (Aagaard *et al.* 2004, Stur unpublished).

Through the first author's participation in the Atna River study, two adult chironomid morphotypes were discovered that clearly differ morphologically, but together fall within *Chaetocladius suecicus* (Kieffer in Thienemann & Kieffer, 1916) in the sense in which this name has been treated in the recent taxonomic literature. A review of specimens from various regions filed under *C. suecicus* in the ZSM collection showed both morphotypes to be present. Genetic analysis of Atna River specimens and one specimen from the Bavarian Alps in this complex, using partial COI sequences documented for DNA barcoding, even showed three haplotype groups. In the following, we therefore aim to characterize the three putative taxa, review usage of the name *Chaetocladius suecicus* (Kieffer), and propose a new scientific species name for the other clearly distinguishable morphotype.