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Chironomus polonicus sp. n. (Diptera: Chironomidae) from southern Poland

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Abstract

The paper describes larval, pupal and adult morphology as well as the karyotype of *Chironomus polonicus* sp. n. from southern Poland. The material has been obtained from reared egg masses collected in Bolesław pool, near Kraków. The species belongs to the *pseudothummi* cytochrome complex with $2n = 8$ and chromosome arm combinations AE, BF, CD, G. Several homozygous inversions distinguish arm A of the new species from that of *C. pseudothummi* Strenzke. Arm F is similar to that of *C. aprilinus* Meigen and differs from it by few steps of homozygous inversions. Few morphological differences in the pupa and adult are also presented.

Key words: Diptera, *Chironomus polonicus*, new species, polytene chromosomes, morphology, southern Poland

Introduction

Chironomidae are a widely distributed and abundant group of insects in freshwater ecosystems. They play an important role in these ecosystems, accounting for 25–100 % of the macroinvertebrate species (Kownacki 2011). Currently 1259 species and subspecies of Chironomidae are known in Europe (Sæther & Spies 2012). One of the most abundant is the genus *Chironomus* Meigen-85 species.

Chironomidae species possess easily identifiable polytene chromosomes, with species-specific banding patterns and these can be used as cytogenetic markers to provide additional signs for studying taxonomy, evolution and phylogeny (Michailova 1989, Kiknadze *et al.* 1991, Wuelker *et al.* 2011). Most species of the genus *Chironomus* have been described on the basis of the species-specific cytogenetic markers.

In the present paper a new *Chironomus* species is described from southern Poland on the basis of all stages of its metamorphosis (except female) together with its karyotype.

Material and methods

The material was obtained from egg masses collected from a small pond (max. depth 1 m) situated on a recent mine spoil in Bolesław in the Olkusz region with Zn-Pb ore deposits (southern Poland) in June 2001 and reared in laboratory conditions in Sofia, following Michailova's (1985) method.

The 4th larval instar was fixed in ethanol-glacial acetic acid (3:1). The chromosome preparations were made from salivary glands following Michailova (1989). The identification of chromosome banding patterns follows Keyl (1962) for arms A, E, and F. In order to identify the position of the centromere regions the chromosome "C" banding method has been applied (Michailova 1987).

For each specimen the chromosome preparation, larval head capsule and body were slide mounted in Euparal. The description of larval morphology follows Sæther (1980).

The preparations of salivary gland chromosomes and larval morphology are stored in the Bulgarian Academy of Sciences, Institute of Biodiversity and Ecosystem Research, Sofia.