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Chromosomal and morphological taxonomy of larvae of *Simulium* (*Gomphostilbia*) (Diptera: Simuliidae) in Thailand

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Abstract

The larvae of 12 species of *Simulium* in the subgenus *Gomphostilbia* in Thailand, including one species newly recorded from Thailand (*Simulium novemarticulatum*) and four undescribed species, were analyzed chromosomally. All larvae had a chromosomal complement of $n = 3$. Positions of landmarks in the IIS arm, specifically the positions of the bulge and the ring of Balbiani, permitted the identification of most species, including some that were morphologically indistinguishable. Species with the IIS landmarks in similar positions differed in larval morphology. The combination of chromosomal landmarks in the IIS arm and selected structural features, especially the form of the cuticular setae on the larval abdomen and the configuration of the postgenal cleft and gill histoblast, permitted accurate identification of all 12 species. The larva and pupa of *S. novemarticulatum* are characterized for the first time.

Key words: *Simulium*, *Gomphostilbia*, polytene chromosomes, Thailand

Introduction

The larval silk-gland chromosomes provide important taxonomic characters in the family Simuliidae, especially for revealing and identifying morphologically similar species known as sibling species or cryptic species (Rothfels 1988). Sibling species can be a problem for taxonomists who use external features as the sole criteria for identification (Baimai 1986). Many black fly morphospecies are complexes of isomorphic, ecologically unique sibling species (Adler *et al*. 2004). In Thailand, information on polytene chromosomes of simuliid species can be found in the papers by Kuvangkadilok *et al.* (1998, 1999a, 1999b, 2003).

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