Dimorphic male scutal patterns and uppereye facets of Simulium mirum n. sp. (Diptera: Simuliidae) from Malaysia

ABSTRACT

Abstract Background: A species of Simulium in the Simulium melanopus species-group of the subgenus Simulium (formerly misidentified as S. laterale Edwards from Sabah and Sarawak, Malaysia) is suspected to have dimorphic male scutal color patterns linked with different numbers of upper-eye facets. This study aimed to confirm whether or not these two forms of adult males represent a single species. Methods: DNA sequences generated from four genetic loci, the mitochondrial-encoded COI, COII, 12S rRNA and 16S rRNA genes, of both forms of Simulium sp. males were compared with each other and also with those of the females and larvae of the same species. Four other related Simulium spp. were also used for comparison. Results: Both the concatenated dataset and single-locus phylogenetic analyses indicate that the two distinct morphological males of Simulium sp. are indeed conspecific, and represent, together with their associated females and larvae, a distinct species. Conclusions: Based on DNA analyses, Simulium sp. is proven to show dimorphism in males and is herein described as a new species, Simulium mirum Takaoka, Sofian-Azirun & Low. This is the first report of such a novel species among the family Simuliidae.