Simulium (Gomphostilbia) softani, a new species of black fly (Diptera: Simuliidae) from peninsular Malaysia

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Abstract. Simulium (Gomphostilbia) softani sp. nov. is described on the basis of reared adult female, male, pupal and larval specimens collected from Cameron Highlands, Pahang state, Malaysia. This new species is placed in the ceylonicum species-group within the subgenus Gomphostilbia and is easily distinguished from all the related known species by the combination of the following characteristics: an elongate sensory vesicle and yellow hair tuft on the stem vein of the wing in the female, the greater number of large upper-eye facets (15 or 16 vertical columns and 15 or 16 horizontal rows) and almost entirely darkened hind basitarsus in the male, and the gill bearing a long common basal stalk and 8 filaments arranged as [(1+2)+ (1+2)] +2 filaments from dorsal to ventral in the pupa.

INTRODUCTION

Black flies (Diptera: Simuliidae) are one of the most important groups among the blood- sucking insects. The blood-sucking habits of female black flies are responsible for considerable deleterious effects on humans and their economic welfare. Reduction of tourism, death of domesticated birds and mammals and transmission of viral, protozoan and filarial diseases are medical and socioeconomic impacts associated with black flies (Adler et al., 2004). Until now, these effects of black flies to humans in peninsular Malaysia have remained unknown but are expected to be investigated in the near future on the basis of a reliable identification key for the adult females as well as accurate information of the fauna of black flies.

The fauna of black flies in peninsular Malaysia is represented by 36 named and 3 unnamed species, which are all classified in the genus Simulium Latreille s. 1. and are further placed in four subgenera: 1 species in Daviesellum Takaoka and Adler, 17 species (16 named and 1 unnamed) in Gomphostilbia Enderlein, 4 species in Nevermannia Enderlein and 17 species (15 named and 2 unnamed) in Simulium Latreille s. str. (Crosskey, 1973; Edwards, 1928; Takaoka, 2000, 2008; Takaoka & Adler, 1997; Takaoka & Davies, 1995, 1997; Takaoka et al., 2010).

In recent surveys of pupae and larvae of black flies in Cameron Highlands, Pahang Darul Makmur, Peninsular Malaysia, we collected a new species placed in the ceylonicum species-group of the subgenus Gomphostilbia, which includes one important vector species of a filarial parasite of animals in northern Thailand, i.e., Simulium (Gomphostilbia) asakoae Takaoka & Davies, 1995, originally described from peninsular Malaysia (Ishii et al., 2008). This new species is easily distinguished from all the known species of this species-group including four species described from peninsular Malaysia [i.e., Simulium (Gomphostilbia) asakoae, Simulium (Gomphostilbia) hoiseni Takaoka, 2008,