Description of a new species of *Simulium* (*Montisimulium*) (Diptera: Simuliidae) from Thailand

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Abstract: *Simulium* (*Montisimulium*) *phahompokense* sp. nov. is described on the basis of female specimens collected from Chiang Mai Province, Thailand. It is characterized by the female claw with a minute basal tooth, which separates it from most known species of the subgenus *Montisimulium*.

Key words: black fly, Simuliidae, *Simulium*, Thailand, *Montisimulium*

In Thailand, *Simulium* (*Montisimulium*) Rubtsov, a relatively homogeneous subgenus in the Oriental and Palaearctic Regions, is represented by four species: *S. (M.) angkaense* Takaoka and Choochote, *S. (M.) merga* Takaoka and Choochote, *S. (M.) laoleense* Takaoka and Choochote, and *S. (M.) surachaii* Takaoka and Choochote (Takaoka and Choochote, 2005a, b, 2009). Recently we collected one new species of this subgenus in Doi Pha Hom Pok National Park and Doi Inthanon National Park in Chiang Mai Province. In this paper, this new species is described on the basis of adult female specimens collected by a Malaise trap.

The terms for morphological features used here follow those of Takaoka (2003). Holotype and paratype specimens of the new species are deposited at the Entomology Section, Queen Sirikit Botanic Garden, Chiang Mai, Thailand.

*Simulium* (*Montisimulium*) *phahompokense* sp. nov.

DESCRIPTION. **Female.** Body length 2.0–2.5 mm. **Head.** Slightly narrower than thorax. Frons blackish-brown, thinly whitish-gray pruinose, densely covered with yellow recumbent hairs interspersed with several dark longer and stouter hairs along each lateral margin (and also medially in some females). Frontal ratio 1.41–1.47 : 1.00 : 1.12–1.47. Frons-head ratio 1.00 : 3.46–3.96. Fronto-ocular area (Fig. 1A) well developed, directed laterally and somewhat upwardly. Clypeus blackish-brown, thinly whitish-gray pruinose, densely covered with yellow recumbent hairs (except narrow portion near upper margin bare) intermixed with several dark longer and stouter hairs along lateral margins and near lower margin. Labrum 0.77–0.88 times as long as clypeus. Antenna composed of scape, pedicel and 9 flagellomeres, dark brown. Maxillary palp consisting of 5 segments, ocherous on 1st and 2nd segments, blackish-brown on 3rd segment, and light to medium brown on 4th and 5th segments, proportional lengths of 3rd, 4th, and 5th segments 1.0 : 1.19–1.23 : 1.82–1.92; 3rd segment in front view (Fig. 1B) of moderate size and somewhat enlarged in lateral view (Fig. 1C); sensory vesicle (Fig. 1B) ellipsoidal, 0.32–0.38 times as long as 3rd segment, and with opening of moderate size apically. Lacinia with 10 or 11 inner and 13–15 outer teeth. Mandible with 21–24 inner teeth (though basal 6–8 very minute) and lacking outer teeth. Cibarium smooth on posterior margin, with well-sclerotized arms directed anterolaterally.
Thorax. Scutum nearly blackish-brown except anterolateral calli ochrous, thinly whitish-gray pruinose, slightly shiny when illuminated at certain angle of light, and densely covered with yellow recumbent hairs mixed with several dark brown upright long hairs on prescutellar area. Scutellum ochrous, with many dark brown upright long hairs as well as yellow shorter hairs. Postnotum dark brown, whitish-gray pruinose, slightly shiny when illuminated at certain angle of light and bare. Pleural membrane bare. Katepisternum longer than deep, dark brown, whitish pruinose, shiny when illuminated at certain angle of light and bare. Legs. Foreleg: coxa light to medium brown; trochanter yellow to light brown; femur medium to dark yellow with apical cap medium brown; tibia medium brown with median portion largely light brown on outer and anterior surfaces; basitarsus very slightly dilated, 8.07–8.17 times as long as its greatest width. Midleg: coxa medium brown with posterior surface dark brown; trochanter medium to dark yellow; femur medium to dark yellow with apical cap medium brown; tibia medium brown

Fig. 1. Female of Simulium (Montisimulium) phahompokense sp. nov. A, fronto-ocular area (right side and front view); B and C, 3rd maxillary palpal segments with sensory vesicle (right side; B, front view; C, lateral view); D, hind basitarsus and 2nd tarsomere (left side; outer view); E, tarsal claw; F, 8th sternite and ovipositor valves (ventral view); G, genital fork (ventral view); H and I, paraprocts and cerci (right side; H, ventral view; I, lateral view); J, spermatheca (lateral view). Scale bars. 0.05 mm for D; 0.02 mm for A–C and F–J; 0.01 mm for E.
with median portion largely light brown on anterior and outer surfaces; tarsus medium to dark brown. Hind leg: coxa medium brown; trochanter medium to dark yellow; femur dark yellow to ocherosus with apical cap medium brown; tibia medium brown with median portion largely light brown on outer and inner surfaces and base ocherosus; tarsus medium brown except basitarsus (though base medium brown) and basal 1/2 of 2nd tarsal segment ocherosus; basitarsus (Fig. 1D) nearly parallel-sided (though somewhat narrowed apically), 6.53–6.77 times as long as its greatest width, 0.72–0.75 and 0.57–0.60 as wide as greatest widths of tibia and femur, respectively; calcipala (Fig. 1D) well developed, nearly as long as wide, and 0.46 times as wide as greatest portion of basitarsus; pedisulcus (Fig. 1D) well developed. All claws (Fig. 1E) each with small basal tooth. Wing. Length 2.2–2.3 mm. Costa with 2 parallel rows of dark short spines as well as dark hairs intermixed with yellow hairs. Subcosta with dark hairs except near apex bare. Hair tuft on stem vein dark brown. Basal portion of radius fully haired. R1 with dark spinules and hairs. R2 with dark hairs only. Basal cell absent. Abdomen. Basal scale medium brown, with fringe of yellow long hairs. Dorsal surface of abdomen medium to dark brown, moderately covered with yellow short hairs interspersed with dark ones; tergites 2, 6–8 shiny (even tergites 3, 4 and 5 slightly shiny in some females) when illuminated at certain angle of light; ventral surface of abdomen nearly light ocherosus except segment 8 darkened; segment 7 with shiny large medium brown sternal plate medially. Genitalia. Sternite 8 (Fig. 1F) wide, bare medially but furnished with 38–42 short to long hairs on each side. Ovipositor valves (Fig. 1F) tongue-like, produced posteromedially, thin, membranous except inner margin narrowly sclerotized, densely covered with microsetae (except narrow portion along posterior margin bare) interspersed with 8–10 short hairs; inner margins widely separated basally from each other, closely approaching each other in middle. Genital fork (Fig. 1G) inverted-Y shaped, with well sclerotized stem and arms of moderate width; stem somewhat curved dorsally; each arm produced posteromedially in form of wide triangular plate, and with distinct projection directed anterodorsally on dorsal surface. Paraproct in ventral view (Fig. 1H) nearly triangular, and in lateral view (Fig. 1I) moderately protruding ventrally, with many short to medium-long hairs on ventral and lateral surfaces, and with 8 sensilla on anteromedial surface. Cercus in lateral view (Fig. 1I) rounded posteriorly, 0.43 times as long as wide. Spermatheca (Fig. 1J) ovoid, strongly sclerotized (except area around its juncture with duct unsclerotized), with distinct reticulate surface pattern, and with internal setae; accessory ducts subequal in diameter to each other and slightly larger in diameter than main duct.

TYPE SPECIMENS. Holotype female, collected by a Malaise trap, 20°03’ 45.6” N, 99°08’ 55.1” E, altitude 2,174 m, Kiewlom 1, Doi Pha Hom Pok National Park, Chiang Mai, Thailand, 7–14. X. 2007, by K. Srisom and P. Womgchai. Paratypes: 8 females, same data as those of the holotype; 2 females, 18°35’ 36.1” N, 98°29’ 15.7” E, altitude 2,500 m, Summit forest, Doi Inthanon National Park, Chiang Mai, Thailand, 17–24. XI. 2006, by Y. Areluck.

ETYMOLOGY. The species name phahompokense refers to the name of the park, Doi Pha Hom Pok National Park, where this new species was collected.

REMARKS. The female of S. (M.) phahompokense sp. nov. is characterized by the claw with a small basal tooth (Fig. 1E), which separates it from those of most known species except S. (M.) decimfiliatum (Rubtsov) from Uzbekistan which has a similar small tooth on the claw (Yankovsky, 2002). However, this new species is distinguished from the latter species by the medium-sized sensory vesicle (Fig. 1B) and the arms of the genital fork with moderate width (Fig. 1G). The sensory vesicle is small and nearly globular and the arms of the genital fork are very wide in S. (M.) decimfiliatum (Yankovsky, 2002). The medium-sized sensory vesicle (Fig. 1B) as well as the claw with a small basal tooth also distinguishes this new species from three of the four known species reported from Thailand: S. (M.) angkaense,
S. (M.) merga and S. (M.) surachaii, of which the female is known. The females of all these three species bear a large sensory vesicle (Takaoka and Choochote, 2005a, 2009). There is a possibility that this new species is conspecific with S. (M.) laoleense, of which the adults and pupa have remained unknown (Takaoka and Choochote, 2005b). However, this is unlikely judging from the difference of 12 base pairs seen between the sequences of the mitochondrial 16S rRNA gene of both species (unpublished data).

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