Description of a New Species of *Topomyia* from Peninsular Malaysia (Diptera: Culicidae)

by

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ABSTRACT. A new species, *Topomyia (Topomyia) danaraji*, is described from Peninsular Malaysia. The adult male, the male genitalia and the pupa are described in detail and illustrations of the male genitalia and pupa are provided. The adult female and the larval stages are as yet unknown.

INTRODUCTION

The genus *Topomyia* Leicester, of the tribe Sabethini, is present mainly in Southeast Asian countries, with one species occurring in Papua-New Guinea and another in China. The Catalog of the Mosquitoes of the World (Knight and Stone, 1977) and the two supplements (Knight, 1978; Ward, 1984) list 35 species as occurring in this genus, 24 of which are included in the subgenus *Topomyia* and 11 in the subgenus *Suaymyia* Thurman. A new species of *Topomyia (Topomyia)* is now recognized from two collections made in rain forests, from the Gap, along the central mountain ridge of Peninsular Malaysia.

The terminology used for the adult male and the male genitalia follows Harbach and Knight (1980), and for the chaetotaxy of the pupa, that of Belkin (1962). The following system is used to enumerate seta branching: If only one numeral is given in parentheses following the seta number, it represents the only number of branches encountered in the sample; if two sets of figures are given, the first represents the modal number of branches and the second, the range encountered in the sample.

Topomyia (Topomyia) danaraji n. sp.
(Fig. 1)

MALE. Wing, 2.8 mm. Proboscis, 1.7 mm. Forefemur, 1.85 mm. Small to medium in size; dark brown with silver markings on head and thorax.

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Head: Vertex with broad, flat, dark brown decumbent scales with green sheen at certain angles. Similar scales on occiput and side of head. A large diamond shaped patch of flat silvery scales on vertex, just above the eyes. Similar patches of silvery scales on side of head, below eye. Erect scales absent. Eyes touching each other above antenna. Interocular and ocular setae present. Clypeus oval and elongate, integument brown and without scales. Maxillary palps small, about 0.13 of proboscis; covered with silver-white scales, except for few brown scales at base. Proboscis slender, elongate and slightly swollen at tip; covered with small dark brown scales, with patch of silver-white scales at base, on venter and sides, and narrow line of white scales extending forward on ventral aspect, to tip of proboscis. Pedicel of antenna brown in color and bare of scales; flagellum pilose, 1.42 mm. long.

Thorax: Integument of scutum and scutellum brown; that of pleuron and postnotum slightly lighter. Scutum densely covered with narrow dark brown scales. Median silver line starting at anterior promontory and extending caudally to approximately the wing roots; line narrow in anterior part and slightly broadening towards the end; consisting of two rows of flat rounded silver scales. Scutal-fossal, dorsocentral (posterior only), prescutellar and supraalar setae present. All three lobes of scutellum with small patches of brown scales, silver scales or patches absent. Setae present on all three lobes. Mesopostnotum bare. Antepronotal lobe with conspicuous silver patch on dorsum, dark brown scales present on anterior side and a few next to the silver scales; row of prominent setae on anterior side. Postpronotum covered with flat brown scales on upper 2/3 and silver scales on lower third; single prominent seta present at middle of the posterior border. Three to five fairly distinct prespiracular setae present. Postspiracular setae absent. Propleuron covered with patch of silver scales. Paratergite bare. Silver scales forming large patch to cover most of the pleuron, including post- and sub-spiracular areas, most of the mesokatepisternum and the mesepimeron. Metepisternum bare. Setae present on upper mesepimeron and prealar areas.

Legs: All coxae and trochanters covered with silver scales. Remaining parts of three legs covered with small dark brown scales, except for white scales at base of femur on ventral side of foreleg and a line extending from base of femur to tip of tarsi 5 on mid- and hind- legs. Claws on all legs simple and equal.

Wing: Brown-scaled. Squame scales densely covering veins; plume scales narrow. Cell R_2 about twice length of stem. Vein A ending beyond fork of Cu. Alula with a row of fine, hair-like scales; upper calypter bare.

Halter: Pedicel and capitellum covered with dark brown scales.

Abdomen: Terga I-VIII densely covered with small, dark brown scales, except for narrow strip on lateral side which is covered with pale gold scales, the upper border of this pale strip appearing as a straight line. Sterna II-VII entirely covered with flat gold scales.

MALE GENITALIA (Fig. 1). Tergum of IX segment broad throughout and fairly flat on posterior surface. Two large and flattened spines with rounded apex situated close to each other on either side of midline. Lateral to these spines lie 3-4 flattened and pointed spines. Sternum IX broad, lateral borders sclerotized; with scattered scales and setae. Gonocoxite length about 3.5 times width at middle, narrow at base and fairly broad at apical end. A large round lobe present on lateral apical angle, covered with dense patch of long setae. A vertical row of small slender setae present on dorsal side of gonocoxite. Ventral lobe of claspette setaceous, bearing 1-2 large pointed spines; dorsal lobe with long curved stem bearing a short flattened filament, broad at center and tapering to a point. Gonostylus slightly curved, with a pointed tip; a flattened and pointed seta present about 1/4 distance from the tip; very fine hair-like setae present toward tip and along base. Paraproct elongated. Phallosome long and slender.

PUPA (Fig. 1). Abdomen, 2.95 mm. Trumpet, 0.3 mm. Paddle, 0.53 mm. Integument of cephalothorax and abdomen pale yellow, with darker yellow brown stripes on anterodorsal aspects of abdominal segments II-VII. Chaetotaxy as figured; conspicuous setae marked with an asterisk (*).

Cephalothorax: Trumpet: Dark yellow, with distinct sculpturing. Index 3.4-3.5; pinna 0.21-0.26 of trumpet length. Seta 1 long, conspicuous, 2-branched from base, 2(2), 3(2,2-3), 4(2,1-3), 5(4,3-5), 6(1), 7(2,1-2), 8(1), 9(2,1-3), 10(4,3-4), 11(1), 12(3,2-3).

Abdomen: Microtrichia present, scanty on abdominal segments II-VII. Segment I: Seta 1 light in color, with 5-7 main branches, each branch subdividing several times to form very fine end branches, 2(1), 3*(1), 4(3,2-4), 5(6,6-7), 6(2), 7(1), 9(1). Segment II: 1(4,2-6), 2(5), 3*(1), 4(2), 5(2,1-2), 6*(1), 7(2,1-2), 9(1), 11(1,1-2). Segment III: 1(2,2-3), 2(1), 3*(1), 4(3,2-3), 5(2,1-2) 6(2,1-2), 7(3,2-3), 8(3), 9(1), 10(2), 11(2,2-3). Segment IV: 1(2-2-4), 2(1), 3(2,2-3), 4(2,2-3), 5*(1), 6(2,2-3), 7(2,2-3), 8(3,2-3), 9(1), 10(2), 11(2). Segment V: 1(2,2-3), 2(1), 3(2,1-2), 4(4,3-4), 5*(1), 6(3,1-3), 7(3,3-4), 8(3,2-3), 9(1), 10(2,1-2), 11(2,2-3). Segment VI: 1(2), 2(1), 3(2,1-2), 4(3,2-3), 5*(1), 6(1), 7(1), 8(3,2-3), 9(1), 10(1,1-2), 11(2,2-3). Segment VII: 1(1), 2(1), 3(1), 4(1), 5(1), 6(2,1-2), 7(2,1-2), 8(3), 9*(12, 11-14, with barbs), 10(2,1-2), 11(2,1-2). Segment VIII: 4(1), 9*(18,15-21, with barbs). Paddle: Lightly pigmented and pointed toward tip, midrib faint but reaching tip; margin with very long fringe along entire length. Male genital lobe large, extending to 0.8 of paddle.

FEMALE AND LARVAL STAGES: As yet unknown. Single larval skin available, but in very poor condition.

TYPE DATA. Holotype male (275.103), with slides of associated pupal skin and genitalia, the Gap, Selangor State, Peninsular Malaysia, elevation 760 M above sea level, from leaf shoot of unidentified plant belonging to the family Araceae, in secondary rain forest, 30 September 1966, K. Ramakrishna collector (USNM). Paratypes: 4 males, 1 slide associated pupal skin and 3 slides male

genitalia. Paratypes include 1 male with associated larval and pupal skin and slide of male genitalia, from the same collection (275.10) as holotype (Ramalingam) and 3 males from collection 93, also breeding in leaf shoots of the same type of plant, in rain forest in the Gap, Selangor State, Malaysia, 18 June 1966, S. Ramalingam, K. Ramakrishna and Sulaiman bin Omar, collectors. Of these, 1 male (93) with slide of genitalia (No. 2698) deposited at USNM, the other two males (Ramalingam).

This species is dedicated to Emeritus Professor, Tan Sri T. J. Danaraj, former Dean of the Faculty of Medicine (1963-1974), University of Malaya, for his contributions to medical education in Malaysia and for his support and encouragement during the active years of the "Mosquitoes of Malaysia Project" (1966-1974).

SPECIMENS EXAMINED. Total 11: 5 males, 2 pupal skins and 4 slides of male genitalia.

TAXONOMIC DISCUSSION. *Topomyia danaraji* belongs to the nominate subgenus *Topomyia* Leicester, as defined by Thurman (1959), as the male genitalia: 1. Has a claspette which consists of a setaceous ventral lobe and an arm like dorsal lobe bearing an appendage. 2. The spines on the IX tergite are close together. 3. The foreleg of the adult male has tarsomere 2 slightly shorter than tarsomere 3.

The median line of silver scales on the scutum, ending at the level of the wing roots and the absence of a patch of silver scales on the midlobe of the scutum relates this species to *aenea* Thurman, *angkoris* Klein, *dejesusi* Baisas and Feliciano, *inclinata* Thurman, *lindsayi* Thurman, *svastii* Thurman, *tipuliformis* Leicester and *unispinosa* Thurman. The presence of silver scales on the palps relates *danaraji* to *argyropalpis, aenea, angkoris, dejesusi* and *lindsayi*. However, *Topomyia danaraji* can be distinguished from all other species by the following distinctive characters of the male genitalia: 1. The shape of the gonostylus. 2. The shape of the gonocoxite and the row of fine setae running vertically on the mid tergal surface. 3. The dorsal arm of the claspette with an expanded spear shaped filament. 4. The IX tergite with a distinctive arrangement of spines.

The pupal stage of most species of *Topomyia* are as yet unknown and hence comparisons with other species cannot be made.

BIOLOGY. *Topomyia danaraji* was collected in the rain forest at an elevation of approximately 760 M above sea level. Both collections of this species were of the immature stages breeding in the central leaf shoots of an unidentified plant belonging to the family Araceae. In both collections (93 and 275) *Topomyia danaraji* was found to breed in association with yet another undescribed species of *Topomyia*, and collection 275 also included the immature stages of *Tripteroides aranoides* (Theobald). No information is available on the biology of the adults.

DISTRIBUTION. So far known only from the type locality, the Gap, Selangor State, Peninsular Malaysia.

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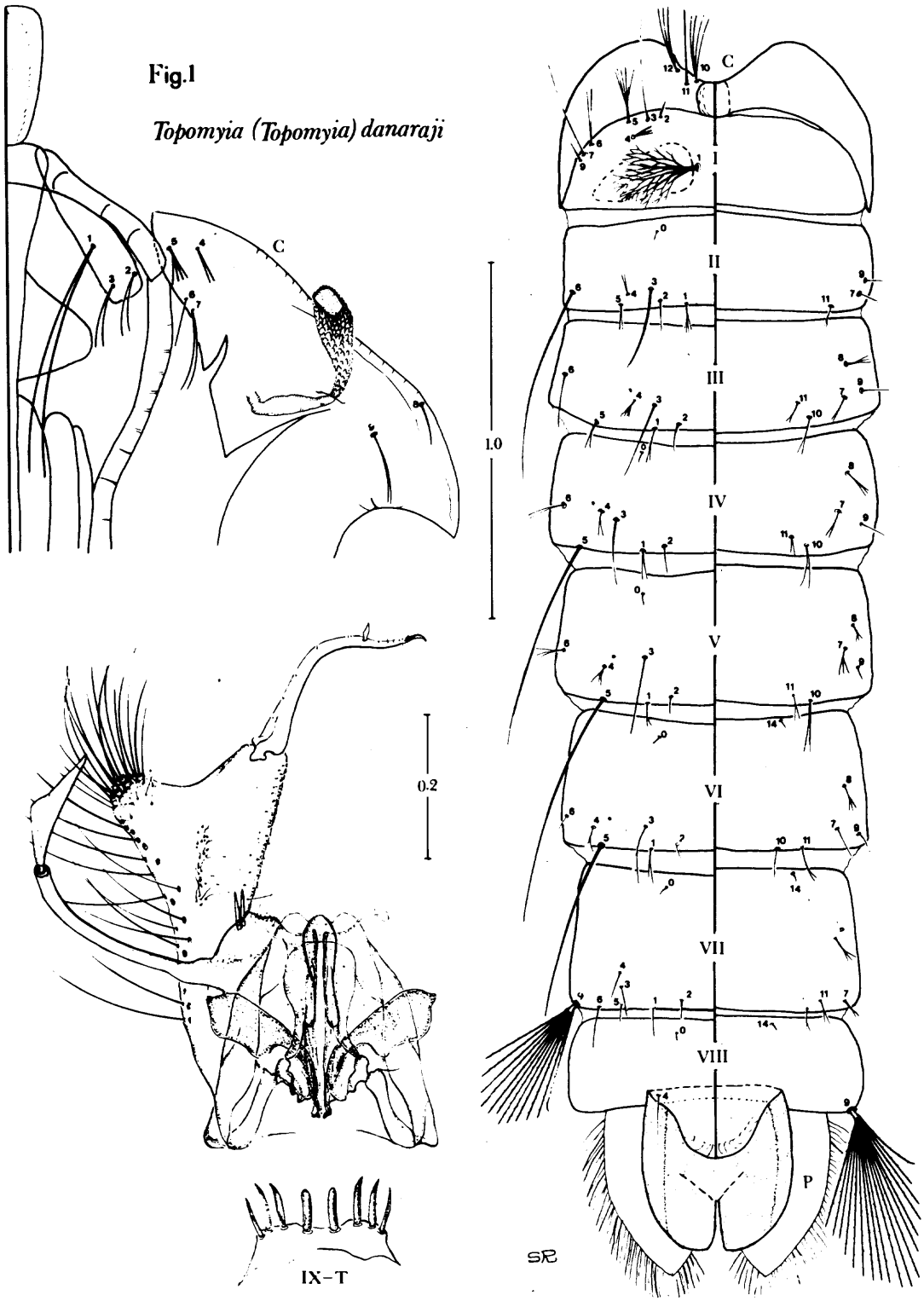

Fig.1

Topomyia (Topomyia) danaraji