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A New Species of the Subgenus *Scaptodrosophila* of the Genus *Drosophila* (Diptera, Drosophilidae) Visiting Flowers in Japan

Toyohi OKADA

Gôtokuji 2-30-18, Setagaya-ku, Tokyo 154, Japan

and

Satoshi NISHIHARU

Department of Biology, Tokyo Metropolitan University,
Fukasawa 2-1-1, Setagaya-ku, Tokyo 158, Japan

Synopsis Description of a new species of *Drosophila* (*Scaptodrosophila*) associated with the flowers of *Angelica* and *Camellia* in Japan is given.

The species of the subgenus *Scaptodrosophila* DUDA of the genus *Drosophila* FALLÉN have been occasionally reported as breeding in flowers: e.g., *D. scapto-myzoidea* DUDA in *Malvaviscus* in Singapore (OKADA, 1957), *D. hibisci* COOK, PARSONS et BOCK in *Hibiscus* in Australia (COOK, PARSONS & BOCK, 1977). CARSON observed that this subgenus has made a major adaptive radiation into the flower breeding niche in Papua New Guinea (OKADA & CARSON, 1980). Although breeding was not confirmed, *D. simplex* de MEIJERE was observed to visit the flowers of *Ipomoea* in Singapore (OKADA, 1975) and *D. parapunctipennis* DUDA the flowers of *Phaeomeria* in Papua New Guinea (unpublished).

The junior author has found *D. puncticeps* OKADA coming to various kinds of flowers in Japan (NISHIHARU, 1978) and an aberrant species of the subgenus associated with the flowers of *Angelica* and *Camellia*. The latter species is to be described as a new species herein, with some ecological notes.

Drosophila (*Scaptodrosophila*) *angelicae* n. sp.

(Fig. 1)

♂, ♀. Body about 1.5 mm in length, generally subshining black. Head (Fig. 1A, B) as broad as thorax. Eye dark red, with thick pile. Antenna with 2nd joint brownish black, with a long bristle; 3rd elongate, dark yellowish brown. Arista with 2 upper long and 2 lower long branches and a large fork. Mouthparts yellow. Palpus dark brown, conical, rounded at tip, with 2 long and a few shorter setae below. Frons glossy deep black, as broad as the length down middle; frontal shield large, reaching anterior margin of frons, somewhat convex, with a depressed line along lateral margin. Periorbit glossy black, anteriorly broadened. Carina high, long and flat above. Cheek very broad, 1/3 as broad as the greatest diameter

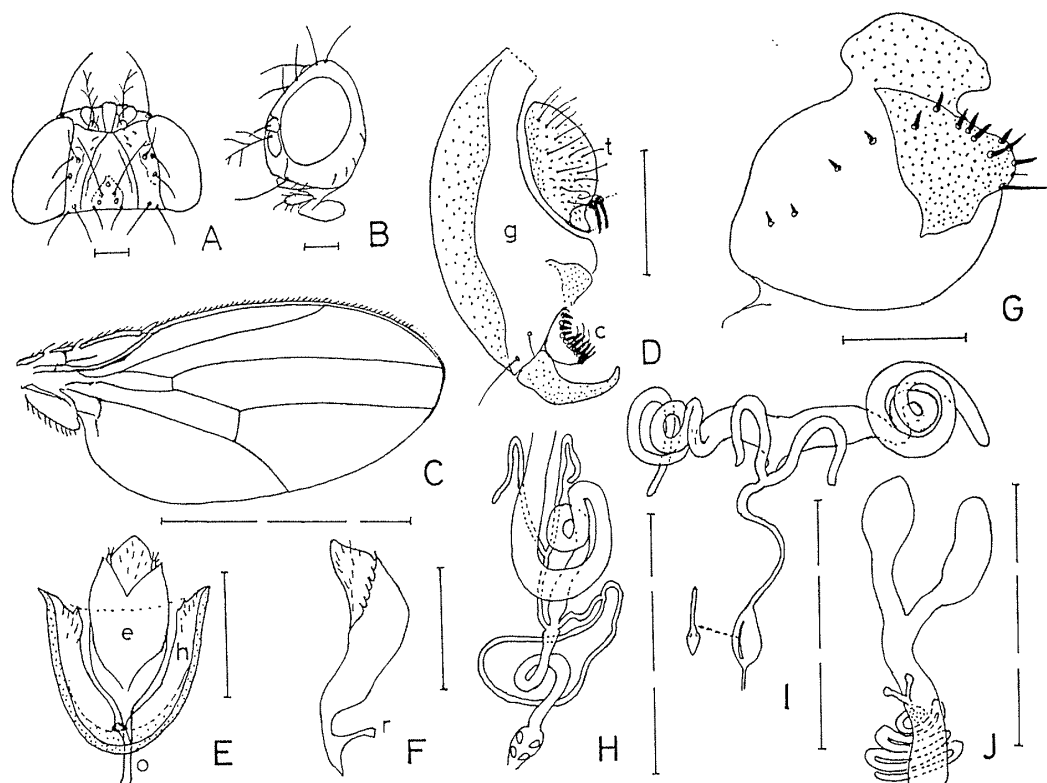


Fig. 1. *Drosophila (Scaptodrosophila) angelicae* n. sp. A, B, Head; C, wing; D, peripheral hallic organs; E, F, phallic organs; G, ovipositor; H, digestive system; I, male internal reproductive organs; J, female internal reproductive organs; c, surstylus; e, aedeagus; g, epanandrium; h, hypandrium; o, apodeme of aedeagus; r, vertical rod of aedeagus; t, cercus. Scales: broken line, 1.0 mm; solid line, 0.1 mm.

of eye. Ocellars inserted inside triangle. Anterior reclinate orbital slightly shorter than proclinate, just outside and before the latter; posterior reclinate as long as proclinate. Vibrissa very strong, 2nd oral 1/4 as long as vibrissa. Mesoscutum subshining black, scutellum deep black. Thoracic pleura deep black, whitish along sutures. Propleurals seemingly absent. Humerals 2 or 3, uppermost the longest. Acrostichal hairs in 8 rows. Prescutellars weakly developed. Anterior dorsocentrals slightly shorter than posteriors, their cross distance slightly more than length distance. Apical scutellars longer than laterals, slightly nearer to each other than to the laterals, which are convergent. Two long sternopleurals; sterno-index 0.7. Legs black, tarsi and lower tip of tibiae yellowish white. Preapical obscure on fore tibia. Wing (Fig. 1C) hyaline, comparatively broad; veins brown. R_{2+3} almost straight; R_{4+5} and M parallel, both convex anteriorly. C-index 1.3–1.7; 4V-index 3.0–3.4; 4C-index 1.7–2.2; 5X-index 3.5–4.0; Ac-index 2.6–3.2. C1-bristles 2, subequal; C3-fringe 5/9. Haltere dark yellow, apically black. Abdominal tergites black, with caudal margins narrowly white. Abdominal sternites quadrate; female 7th sternite separated into lateral flaps.

Periphallic organs (Fig. 1D) brownish black; epandrium (g) narrowing above, ventrally with a curved process; surstylus (c) crescent, with about 9 black teeth in a concave row; cercus (t) fusiform, hairy, with a tuft of 2 stout black bristles below. Phallic organs (Fig. 1E, F) with aedeagus (e) gross, ellipsoidal. Pale and distally pubescent, laterally black, mediolaterally serrated; apodeme of aedeagus (o) short, 1/3 as long as aedeagus; vertical rod (r) as long as apodeme. Hypandrium (h) deeply notched, apically pubescent. Ovipositor (Fig. 1G) rounded fan-shaped, black, distally deep black, submarginally with about 14 stout teeth, subapically with a prominent spine. Mid-intestine (Fig. 1H) twice coiled. Posterior branches of Malpighian tubules fused to make a complete loop. Testis (Fig. 1I) orange, with about 3 outer coils, basally much thickened and fused to each other to make a large seminal vesicle; paragonia pale, slender, once folded; ejaculatory bulb small, simple; apodeme slender, spoon-like. Spermatheca (Fig. 1J) small, pale; ventral receptacle with 4 large loops; parovaria absent.

Holotype ♂, allotype ♀, Asakawa, Tokyo 22 X 1976, ex flowers of *Angelica polymorpha* MAXIM. (Umbelliferae), Paratypes 8 ♂, 1 ♀, same data as holotype; 2 ♂, same place, 11 X 1974, ex same flowers as above; 1 ♀, same place as above, 30 I 1975, ex flowers of *Camellia japonica* L. (Theaceae); 1 ♀, Tsubaki, Wakayama Pref., 12 X 1976, by sweeping; 1 ♀, Udo Jingu, Miyazaki Pref., 21 III 1977, swept over *Stellaria* (Caryophyllaceae) (all by NISHIHARU); 1 ♂, Mishima, Tamazawa, Shizuoka Pref., 8 XI 1975 (KAWANISHI). Types are deposited in the National Science Museum, Tokyo.

Distribution. Japan (Honshu, Kyushu).

Relationships. This species is an aberrant among the subgenera, especially in having the fan-shaped ovipositor as seen in some *Scaptomyza* (*Parascaptomyza*) species, and anterior reclinate orbital slightly before the proclinate as in "*Spuriostyloptera*" species, which have been included in *Scaptodrosophila* by BOCK and PARSONS (1978). Different, however, from the *Spuriostyloptera* species, the present species has unspotted mesoscutum.

Remarks. The early stages of this species are still unknown. The adult flies have been found in colder season, particularly in late autumn visiting the flowers of *Angelica* which bloom in that season. It is improbable that the larvae breed in the flowers which are very small.

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Literature

- BOCK, I. R. & P. A. PARSONS, 1978. The subgenus *Scaptodrosophila* (Diptera: Drosophilidae). *Syst. Ent.*, **3**: 91-102.

- BOCK, I. R. & H. L. CARSON, 1980. *Drosophilidae* associated with flowers in Papua New Guinea II. *Alocasia* (Araceae). *Pacif. Ins.*, **22**: 217-236.
- COOK, R. M., P. A. PARSONS & L. R. BOCK, 1977. Australian endemic *Drosophila* II. A new *Hibiscus*-breeding species with its description. *Austral. J. Zool.*, **25**: 755-763.
- NISHIHARU, S., 1978. Food habits and evolution of *Drosophila* (in Japanese). *Iden (Genetics)*, *Tokyo*, **32** (10): 12-20.
- OKADA, T., 1975. The Oriental drosophilids breeding in flowers. *Kontyû, Tokyo*, **43**: 356-363.

新刊紹介

日本原色カイガラムシ図鑑 河合 省三著, 445 頁, 全国農村教育協会発行.

本書は日本産のカイガラムシ上科の全既知種を集大成した大著である。重要な多くの害虫種を含むこのグループについて、これまでまとまった成書がなく、本書の刊行は、とくに害虫防除にたずさわる現場の技術者に対して大きな福音をもたらしたといえよう。著者の河合省三氏は東京都農業試験場において長年カイガラムシ類の研究を続けてきた研究者である。本書を単なる図鑑に終らせることなく、十分計算されて利用価値が高められているのは、著者のこの豊富な現場経験の所産であらう。80 頁に及ぶ原色図版と 200 頁を越える記載もさることながら、巻末にはカイガラムシ類の形態、進化、生理、生態、天敵等に関する詳細な記述があり、まとまった総説としての意義が高い、また、付録として都道府県別の種の分布表および寄主植物の一覧が収録され、ぼう大な文献リストとともに利用者にとってはきわめて便利である。多忙な害虫防除の研究の場において本書を完成させた著者の努力に敬意を表し、本書が広く利用されることを期待する次第である。

(梅谷 献二)