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Sarcophaginae in Taiwan (Diptera : Sarcophagidae)*

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Abstract. The subfamily Sarcophaginae (Diptera : Sarcophagidae) in Taiwan is revised and a taxonomic key to the male fly is added. Forty two species are recorded from Taiwan. Among them four are new to science and nine are new records from Taiwan. Four new species, *Sarcophaga fenchihuensis*, *S. lini*, *S. membranocorporis* and *S. tsengi* are described. *Sarcophaga tristylata* BOETTCHER is redescribed here because BOETTCHER's original description (1912) was insufficient and no one has redescribed this species until now.

Introduction

There have been no revisions of the subfamily Sarcophaginae in Taiwan since BOETTCHER (1912, 1913) published two papers on fourteen species belonging to the genus *Sarcophaga* MEIGEN in Taiwan by the collection of H. SAUTER. HENNIG (1941) listed 23 species of Sarcophaginae from Taiwan in the catalog of the diptera from Taiwan. LOPES *et al.* (1977) listed 28 species of Sarcophaginae from Taiwan in the catalog of the diptera of the Oriental region. Then we found four new species and nine newly recorded species from Taiwan. So 42 sarcophagine species are known from Taiwan.

Materials and Methods

The major part of flies examined were from the collection of Department of Medical Zoology, Faculty of Medicine, Tokyo Medical and Dental University. Some specimens examined were from the collection of Dr. M. IWASA of Obihiro University of Agriculture and Veterinary Medicine, Dr. K. KANMIYA of Kurume University, Dr. H. KURAHASHI of National Institute of Health, Dr. K. NISHIDA of Public Health Research Institute of Kobe City, and Dr. H. SHIMA of Kyushu University.

Terminology and systematics are based on SUGIYAMA and KANO (1984).

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Key to the genera and species of Sarcophaginae in Taiwan
(Male)

1. Cercus bent posteriorly ; median process absent
 ... Tribe Tephromyiini, genus *Blaesoxipha* LOEW, *Blaesoxipha formosana* BARANOV
- Cercus straight or bent anteriorly ; median process present...Tribe Sarcophagini... 2
2. Basal part of stylus straight..... Genus *Harpagophalla* ROHDENDORF... 3
- Basal part of stylus coiled Genus *Sarcophaga* MEIGEN... 4
3. Cercus slender ; apex of juxta with horn-like processes.....
 *Harpagophalla reciproca* (WALKER)
- Cercus stout and wide ; apex of juxta without horn-like processes
 *Harpagophalla phoenicopterus* (BOETTCHER)
4. Arista pubescent ; 2 *nt* ; scutum grayish pollinose *Sarcophaga cinerea* (FABRICIUS)
- Arista plumose ; 4 *nt* ; scutum with three black longitudinal stripes 5
5. *post-dc* three pairs 6
- *post-dc* four or five pairs 14
6. r_1 with black setae..... *Sarcophaga calicifera* BOETTCHER
- r_1 bare..... 7
7. Propleuron hairy 8
- Propleuron bare 9
8. Third abdominal tergite with median marginal bristles (Figs. 13-16).....
 *Sarcophaga tsengi* SUGIYAMA n. sp.
- Third abdominal tergite without median marginal bristles (Figs. 1-4)
 *Sarcophaga fenchihuensis* SUGIYAMA n. sp.
9. First genital segment (synsternite 7+8) long..... 10
- First genital segment (synsternite 7+8) short 11
10. Body color dark blue-black ; outer vertical bristles poorly developed ; first genital segment without strong marginal bristles *Sarcophaga nigribasicosta* (CHEN)
- Body color dark blackish brown ; outer vertical bristles well developed ; apical edge of first genital segment with strong marginal bristles...*Sarcophaga melanura* MEIGEN
11. Fifth sternite with a setous protuberance at the middle part.....
 *Sarcophaga caudagalli* BOETTCHER
- Fifth sternite without protuberances 12
12. Stylus extremely robust *Sarcophaga taiwanensis* (KANO et LOPES)
- Stylus slender 13
13. Vesica long, with a pair of triangular projections at the inner middle portion
 *Sarcophaga josephi* BOETTCHER
- Vesica short, without projections (Figs. 6-8) *Sarcophaga lini* SUGIYAMA n. sp.
14. Propleuron hairy 15
- Propleuron bare 22
15. Fourth sternite with a patch of dense black bristles posteriorly..... 16
- Fourth sternite without a patch of black bristles 17
16. Surstylus elongate and slender ; vesica without hook-like projections.....
 *Sarcophaga inextricata* WALKER
- Surstylus subtriangular shape ; vesica with a pair of slender hook-like projections on the basal portion..... *Sarcophaga gracilior* (CHEN)

17. Hind tibia without long hairs..... 18
- Hind tibia with long hairs 19
18. Anterior paramere slender, much longer than posterior paramere ; anterior margin of vesica convex in profile *Sarcophaga peregrina* (ROBINEAU-DESVOIDY)
- Anterior paramere short, almost same length in comparison with posterior paramere ; anterior margin of vesica concave in profile
..... *Sarcophaga formosensis* (KIRNER et LOPES)
19. Posterior part of gena with white hairs..... *Sarcophaga pattoni* SENIOR-WHITE
- Gena with black hairs only..... 20
20. *post-dc* four pairs ; membranous region absent between corpus and juxta
..... *Sarcophaga schuetzei* KRAMER
- *post-dc* five pairs ; membranous region present between corpus and juxta 21
21. Apex of juxtal process bifurcate *Sarcophaga idmais* SÉGUY
- Apex of juxtal process not bifurcate..... *Sarcophaga serrata* HO
22. Antennae orange *Sarcophaga ruficornis* (FABRICIUS)
- Antennae brown or black 23
23. Fifth sternite with a protuberance at the middle part.....
..... *Sarcophaga gravellyi* SENIOR-WHITE
- Fifth sternite without protuberances 24
24. Hind tibia without long hairs..... 25
- Hind tibia with long hairs 31
25. Gena with some white hairs 26
- Gena with black hairs only..... 27
26. Gena with white hairs only *Sarcophaga concreata* SÉGUY
- Anterior part of gena with black hairs *Sarcophaga crinita* PARKER
27. *post-dc* four pairs 28
- *post-dc* five pairs..... 29
28. Third abdominal tergite with strong median marginal bristles ; juxtal process stout
..... *Sarcophaga basiseta* BARANOV
- Third abdominal tergite usually without median marginal bristles, if present (specimens in Lanhsu Island), the bristles not strong ; juxtal process slender
..... *Sarcophaga prosbaliina* BARANOV
29. Apex of juxtal process straight, not bifurcate..... *Sarcophaga iwuensis* HO
- Apex of juxtal process bifurcate 30
30. Juxtal process thin, thread-like (Figs. 17-20) *Sarcophaga tristylata* BOETTCHER
- Juxtal process relatively stout *Sarcophaga scopariiformis* SENIOR-WHITE
31. Gena with some white hairs 32
- Gena with black hairs only..... 37
32. Almost all part of gena with white hairs 33
- Anterior part of gena with black hairs, posterior part with white hairs 34
33. Cercus slender ; ventral membrane of theca-phallus junction not bulgy.....
..... *Sarcophaga misera* WALKER
- Cercus rather stout ; ventral membrane of theca-phallus junction bulgy
..... *Sarcophaga sericea* WALKER
34. Third and fourth sternites with many long hairs ... *Sarcophaga beesoni* SENIOR-WHITE

- Third and fourth sternites without long hairs 35
- 35. Sixth abdominal tergite present *Sarcophaga albiceps* MEIGEN
- Sixth abdominal tergite lost 36
- 36. Juxtal process long and slender *Sarcophaga dux* THOMSON
- Juxtal process short and relatively stout *Sarcophaga brevicornis* HO
- 37. *post-dc* four pairs 38
- *post-dc* five pairs 41
- 38. Juxta membranous (Figs. 9-12) *Sarcophaga membranocorporis* SUGIYAMA n. sp.
- Juxta well sclerotized 39
- 39. Membranous region absent between corpus and juxta
..... *Sarcophaga ostindicae* SENIOR-WHITE
- Membranous region present between corpus and juxta 40
- 40. Harpe long, its apex not bifurcate *Sarcophaga hainanensis* HO
- Harpe short, its apex bifurcate *Sarcophaga hervebazini* SÉGUY
- 41. Third and fourth sternites with many long hairs *Sarcophaga anchoriformis* (FAN)
- Third and fourth sternites without long hairs 42
- 42. Posterior paramere stout *Sarcophaga tuberosa* PANDELLÉ
- Posterior paramere slender *Sarcophaga idmais* SÉGUY

1 *Blaesoxipha formosana* BARANOV, 1931

Blaesoxipha formosana BARANOV, 1931, *Konowia*, **10**: 110. Type locality: Sukutsu, Taiwan.

This species is a parasite of the grasshopper. Rare species.

Distribution: Taiwan.

Specimens examined: 1 ♀, Kuantsuling, Tainan Hsien, 7 IV. 1965, S. MIYAMOTO; 1 ♂, Chingliu, Jenai, 27 V. 1972, H. M. LIN; 5 ♂♂, Kuantsuling, Tainan Hsien, 10-11 VII. 1985, H. SHIMA; 4 ♂♂, Laanung, Kaohsiung Hsien, 11 VII. 1985, S. SHINONAGA; 1 ♂, Lenai 1000 m, Nantou Hsien, 23 VII. 1985, S. SHINONAGA.

2 *Harpagophalla phoenicopter* (BOETTCHER, 1913)

Sarcophaga phoenicopter BOETTCHER, 1913, *Annl. hist.-nat. Mus. nat. hung.*, **11**: 376. Type locality: Kankau, Taiwan.

Relatively rare species and only found from southern part of Taiwan.

Distribution: Taiwan (Pingtung Hsien and Taitung Hsien).

Specimens examined: 2 ♀♀, Kenting Park, Pingtung Hsien, 2 IV. 1965, R. KANO; 1 ♂, 1 ♀, Kenting Park, Pingtung Hsien, 3 IV. 1965, R. KANO; 5 ♂♂, Szuchunghsi, Pingtung Hsien, 8 X. 1965, K. KANEKO; 1 ♂, Kenting Park, Pingtung Hsien, 11 VI. 1970, H. KURAHASHI; 2 ♂♂, Kenting Park, Pingtung Hsien, 12 VI. 1970, H. KURAHASHI; 1 ♂, Kenting Park, Pingtung Hsien, 12 VI. 1970, K. NISHIDA; 2 ♂♂, Kenting Park, Pingtung Hsien, 15 VI. 1970, K. NISHIDA; 1 ♀, Kenting Park, Pingtung Hsien, 15 VI. 1970, H. KURAHASHI; 1 ♂, 1 ♀, Kenting Park, Pingtung Hsien, 13 VI. 1972, R. KANO; 1 ♂, Kenting Park, Pingtung Hsien, 13 III. 1981, M. IWASA; 2 ♂♂, Sheuchia, Pingtung Hsien, 14 VII. 1985, S. SHINONAGA; 2 ♂♂, Sheuchia, Pingtung Hsien, 14 VII. 1985, H. SHIMA; 1 ♀, Chihpen, Taitung Hsien, 20 VII. 1985, H. SHIMA; 1 ♂, Kenting Park,

Pingtung Hsien, 18-19 XI. 1985, K. KANMIYA.

3 *Harpagophalla reciproca* (WALKER, 1856)

Sarcophaga reciproca WALKER, 1856, *J. Proc. Linn. Soc. Lond., Zool.*, 1: 22. Type locality: Singapore.

Sarcophaga krameri BOETTCHER, 1912, *Ent. Mitt.*, 1: 166. Type locality: Taiwan.

Sarcophaga orientaloides, SENIOR-WHITE, 1924, *Rec. Indian Mus.*, 26: 244. Type locality: Matale, Sri Lanka.

Common species.

Distribution: Taiwan; Burma, China, India, Hainan Is., Laos, Malaysia, Nepal, Singapore, Sri Lanka, Thailand; Hawaii.

Specimens examined: 2 ♀♀, Kenting Park, Pingtung Hsien, 2 IV. 1965, R. KANO; 1 ♀, Wulai 150 m, Taipei Hsien, 17 IV. 1965, R. KANO; 12 ♂♂, 2 ♀♀, Kuantsuling, Tainan Hsien, 7 VI. 1970, H. KURAHASHI; 4 ♂♂, 1 ♀, Kuantsuling, Tainan Hsien, 7 VI. 1970, K. NISHIDA, 23 ♂♂, 3 ♀♀, Kuantsuling, Tainan Hsien, 8 VI. 1970, H. KURAHASHI; 13 ♂♂, 1 ♀, Kuantsuling, Tainan Hsien, 8 VI. 1970, K. NISHIDA; 9 ♂♂, 2 ♀♀, Kenting Park, Pingtung Hsien, 15 VI. 1970, H. KURAHASHI; 6 ♂♂, Nanshanchi, Nantou Hsien, 18 VI. 1970, H. KURAHASHI; 1 ♂, Kuantsuling, Tainan Hsien, 11 VII. 1985, S. SHINONAGA; 1 ♂, Laanung, Kaohsiung Hsien, 11 VII. 1985, S. SHINONAGA; 1 ♂, Liuknei, Kaohsiung Hsien, 12 VII. 1985, S. SHINONAGA; 2 ♀♀, Santimen, Pingtung Hsien, 13 VII. 1985, S. SHINONAGA; 1 ♂, Lanhsu Is., Taitung Hsien, 17-19 VII. 1985, S. SHINONAGA; 1 ♂, Juisui, Hualien Hsien, 10 XI. 1985, K. KANMIYA; 2 ♂♂, Chihpen, Taitung Hsien, 15 XI. 1985, K. KANMIYA.

4 *Sarcophaga albiceps* MEIGEN, 1826

Sarcophaga albiceps MEIGEN, 1826, *Syst. Besch. europ. zweifl. Insekt.*, 5: 22. Type locality: not given (Europe).

Common species.

Distribution: Taiwan; Borneo, China, India, Malaysia, Nepal, Philippines, Ryukyu Is., Thailand; Bismarck Arch., Europe, Hawaii, Israel, Japan, Korea, New Guinea, Solomon Is., Turkey.

Specimens examined: 2 ♀♀, Kenting Park, Pingtung Hsien, 2 IV. 1965, R. KANO; 3 ♀♀, Kuantsuling 250 m, Tainan Hsien, 6 IV. 1965, R. KANO; 1 ♀, Janai (Mushia), Nantou Hsien, 28 IX. 1965, K. KANEKO, 1 ♂, Hotso (Roshan), Nantou Hsien, 30 IX. 1965, K. KANEKO; 1 ♂, Chihpen, Taitung Hsien, 13 X. 1965, K. KANEKO; 1 ♂, 1 ♀, Fenchihu, Chia Hsien, 1 VI. 1970, K. NISHIDA; 8 ♂♂, 2 ♀♀, Nanshanchi, Nantou Hsien, 18 VI. 1970, K. NISHIDA; 1 ♂, Liuknei, Kaohsiung Hsien, 12 VII. 1985, S. SHINONAGA; 1 ♂, 1 ♀, Santimen, Pingtung Hsien, 13 VII. 1985, S. SHINONAGA; 5 ♂♂, Lanhsu Is. Taitung Hsien, 17-19 VII. 1985, S. SHINONAGA; 1 ♂, Huanshan, Chichiawanchi, Taichung Hsien, 6 XI. 1985, K. KANMIYA.

5 *Sarcophaga anchoriformis* (FAN, 1964)

Parasarcophaga (Digitiventra) anchoriformis FAN, 1964, *Acta zootax. sin.*, **1**: 309. Type locality: Tienmu-shan, China.

Rare species. It is recorded here from Taiwan for the first time.

Distribution: Taiwan (Fenchihu); China.

Specimens examined: 1♂, Fenchihu, Chiai Hsien, 4 IV. 1965, R. KANO; 2♂♂, Fenchihu 1370 m, Chiai Hsien, 11 IV. 1965, S. MIYAMOTO; 2♂♂, Fenchihu 1370 m, Chiai Hsien, 11 IV. 1965, M. YOSHIMOTO; 2♂♂, Fenchihu 1370 m, Chiai Hsien, 12 IV. 1965, S. UENO; 2♂♂, Fenchihu, Chiai Hsien, 12 IV. 1965, R. KANO; 2♂♂, Fenchihu, Chiai Hsien, 4 VI. 1972, R. KANO.

Remarks: VERVES (1986) treated *S. anchoriformis* as a synonym of *Robineauella uemotoi* KANO et FIELD, 1964, but these two are clearly different species. The apex of the juxtal process is bifurcate in case of the former species, but it is pointed and not bifurcate in case of the latter species.

6 *Sarcophaga basiseta* BARANOV, 1931

Sarcophaga basiseta BARANOV, 1931, *Konowia*, **10**: 111. Type locality: Toa-Tsui-Kutsu, Taiwan.

Rare species.

Distribution: Taiwan.

Specimens examined: 1♂, Wulai 150 m, Taipei Hsien, 17 IV. 1965, T. SAIGUSA; 1♂, Kuantsuling, Tainan Hsien, 8 VI. 1970, H. KURAHASHI; 4♂♂, Tsupun, Taitung Hsien, 21 III. 1981, M. IWASA.

7 *Sarcophaga beelsoni* SENIOR-WHITE, 1924

Sarcophaga beelsoni SENIOR-WHITE, 1924, *Rec. Indian Mus.*, **26**: 243. Type locality: Mohnyin, Burma.

Rare species. It is recorded here from Taiwan for the first time.

Distribution: Taiwan (Kuantsuling); Burma, China, Thailand; Japan.

Specimens examined: 1♂, Kuantsuling, Tainan Hsien, 8 VI. 1970, H. KURAHASHI; 1♂, Kuantsuling, Tainan Hsien, 7 VI. 1972, R. KANO.

8 *Sarcophaga breicornis* HO, 1934

Sarcophaga breicornis HO, 1934, *Bull. Fan Mem. Inst. Biol.*, **5**: 23. Type locality: Peiping, China.

Relatively common species. It is recorded here from Taiwan for the first time.

Distribution: Taiwan; Borneo, China, Hainan Is., Malaysia, Ryukyu Is.; Korea, Japan.

Specimens examined: 1♂, Kenting Park, Pingtung Hsien, 4 IV. 1965, R. KANO; 1♀, Kuantsuling 250 m, Tainan Hsien, 6 IV. 1965, R. KANO; 1♀, Peitou, Taipei Hsien, 23 IX. 1965, K. KANEKO; 3♂♂, 1♀, Chuchi, Chiai Hsien, 5 X. 1965, K. KANEKO; 9♂♂, Chihpen, Taitung Hsien, 13 X. 1965, K. KANEKO; 4♂♂, 4♀♀, Ynli, Hualien Hsien, 15 X. 1965, K. KANEKO; 9♂♂, 1♀, Kuantsuling, Tainan Hsien, 8 VI. 1970, H. KURAHASHI;

3♂♂, Lanhsu Is., Taitung Hsien, 17-19 VII. 1985, S. SHINONAGA.

9 *Sarcophaga calicifera* BOETTCHER, 1912

Sarcophaga calicifera BOETTCHER, 1912, *Ent. Mitt.*, 1: 169. Type locality: Taiwan.

This species is not so abundant.

Distribution: Taiwan; China, India, Philippines, Ryukyu Is., Sri Lanka; Nigeria, Zaire, Uganda.

Specimens examined: 1♂, Chuchi 120 m, Chia Hsien, 13 IV. 1965, R. KANO; 1♀, Hotso (Roshan), Nantou Hsien, 30 IX. 1965, K. KANEKO; 1♂, Kenting, Pingtung Hsien, 11X. 1965, K. KANEKO; 5♂♂, 3♀♀, Chingliu, Jenai, 27 V. 1972, R. KANO; 1♂, Kuant-suling, 7 VI. 1972, R. KANO; 9♂♂, 1♀, Ssuchungchi, 11 VI. 1972, R. KANO; 3♂♂, 3♀♀, Ssuchungchi, 11 VI. 1972, H. M. LIN.

10 *Sarcophaga caudagalli* BOETTCHER, 1912

Sarcophaga caudagalli BOETTCHER, 1912, *Ent. Mitt.*, 1: 167. Type locality: Taiwan.

This species is not so abundant.

Distribution: Taiwan; China.

Specimens examined: 2♀♀, Taipei, Taipei Hsien, 27 III. 1965, R. KANO; 2♂♂, 1♀, Chuchi 120 m, Chia Hsien, 13 IV. 1965, R. KANO; 3♂♂, 1♀, Ynli, Hualien Hsien, 15 X. 1965, K. KANEKO; 5♂♂, 1♀, Tachi, 18 VI. 1972, R. KANO; 6♂♂, Lanhsu Is., Taitung Hsien, 17-19 VII. 1985, S. SHINONAGA.

11 *Sarcophaga cinerea* (FABRICIUS, 1794)

Musca cinerea FABRICIUS, 1794, *Ent. Syst.*, 4: 331. Type locality: East India.

This species is not so abundant. It is captured by the seashore.

Distribution: Taiwan; China, India, Laos, Ryukyu Is., Sri Lanka, Thailand; Japan.

Specimens examined: 7♂♂, 10♀♀, Hengchun, Nanwan, Pingtung Hsien, 4 IV. 1965, R. KANO; 16♂♂, 12♀♀, Kaohsiung beach, 8 VI. 1972, R. KANO; 6♂♂, 5♀♀, Kaohsiung beach, 8 VI. 1972, H. M. LIN; 2♂♂, 2♀♀, Chinshan beach, 17 VI. 1972, H. M. LIN; 1♂, 5♀♀, Chinshan beach, 17 VI. 1972, R. KANO.

12 *Sarcophaga concreata* SÉGUY, 1934

Sarcophaga concreata SÉGUY, 1934, *Encycl. Ent. (B) II, Dipt.*, 7: 27. Type locality: Zi-ka-wei, China.

Rare species. It is recorded here from Taiwan and Nepal for the first time.

Distribution: Taiwan (Pingtung Hsien); China, Nepal.

Specimens examined: 4♂♂, Kenting Park, Pingtung Hsien, Taiwan, 15 VI. 1970, H. KURAHASHI; 1♂, Kenting Park, Pingtung Hsien, Taiwan, 18-19 XI. 1985, K. KANMIYA; 1♂, Biratnagar, Nepal, 4 VI. 1964, R. KANO.

13 *Sarcophaga crinita* PARKER, 1917

Sarcophaga crinita PARKER, 1917, *Proc. U. S. nat. Mus.*, **54**: 93. Type locality: Philippines.

This species is relatively common in Pingtung Hsien and in Lanhsu Island. It is not captured in other districts.

Distribution: Taiwan (Pingtung Hsien, Lanhsu Is.); Borneo, Philippines; Admiralty Is., Australia, Bismarck Arch., New Guinea, Solomon Is.

Specimens examined: 2♂♂, Kenting Park, Pingtung Hsien, 2 IV. 1965, R. KANO; 3♂♂, 1♀, Kenting Park, Pingtung Hsien, 4 IV. 1965, R. KANO; 2♂♂, 1♀, Kenting Park, Pingtung Hsien, 11 X. 1965, K. KANEKO; 1♂, 1♀, Kenting Park, Pingtung Hsien, 15 VI. 1970, H. KURAHASHI; 1♂, Oluanpi, Pingtung Hsien, 15 VI. 1970, H. KURAHASHI; 1♂, Kenting Park, Pingtung Hsien, 13 III. 1981, M. IWASA; 1♂, Kenting Park, Pingtung Hsien, 15 VII. 1985, S. SHINONAGA; 4♂♂, 2♀♀, Lanhsu Is., Taitung Hsien, 17-19 VII. 1985, S. SHINONAGA; 4♂♂, Lanhsu Is., Taitung Hsien, 17-19 VII. 1985, H. SHIMA; 1♂, 1♀, Kenting Park, Pingtung Hsien, 19 X. 1985, K. KANMIYA.

14 *Sarcophaga dux* THOMSON, 1869

Sarcophaga dux THOMSON, 1869, *K. svenska Vetensk Akad. K. svenska fregatten Eugenie's resa omkring jorden*, **2**: 534. Type locality: Honolulu, Hawaii.

Sarcophaga misera: ROHDENDORF, 1937, *Fauna USSR, Dipt.*, **19** (1): 223. (misidentification; not WALKER, 1849)

Rare species in Taiwan.

Distribution: Taiwan; Borneo, China, Hainan Is., Java, Ryukyu Is., Sri Lanka; Australia, Hawaii, Japan, Korea, New Guinea.

Specimens examined: 1♂, 1♀, Chihpen, Taitung Hsien, 13 X. 1965, K. KANEKO.

15 *Sarcophaga fenchihuensis* SUGIYAMA, n. sp.

(Figs. 1-5)

Male. Body length 7.7-9.8 mm.

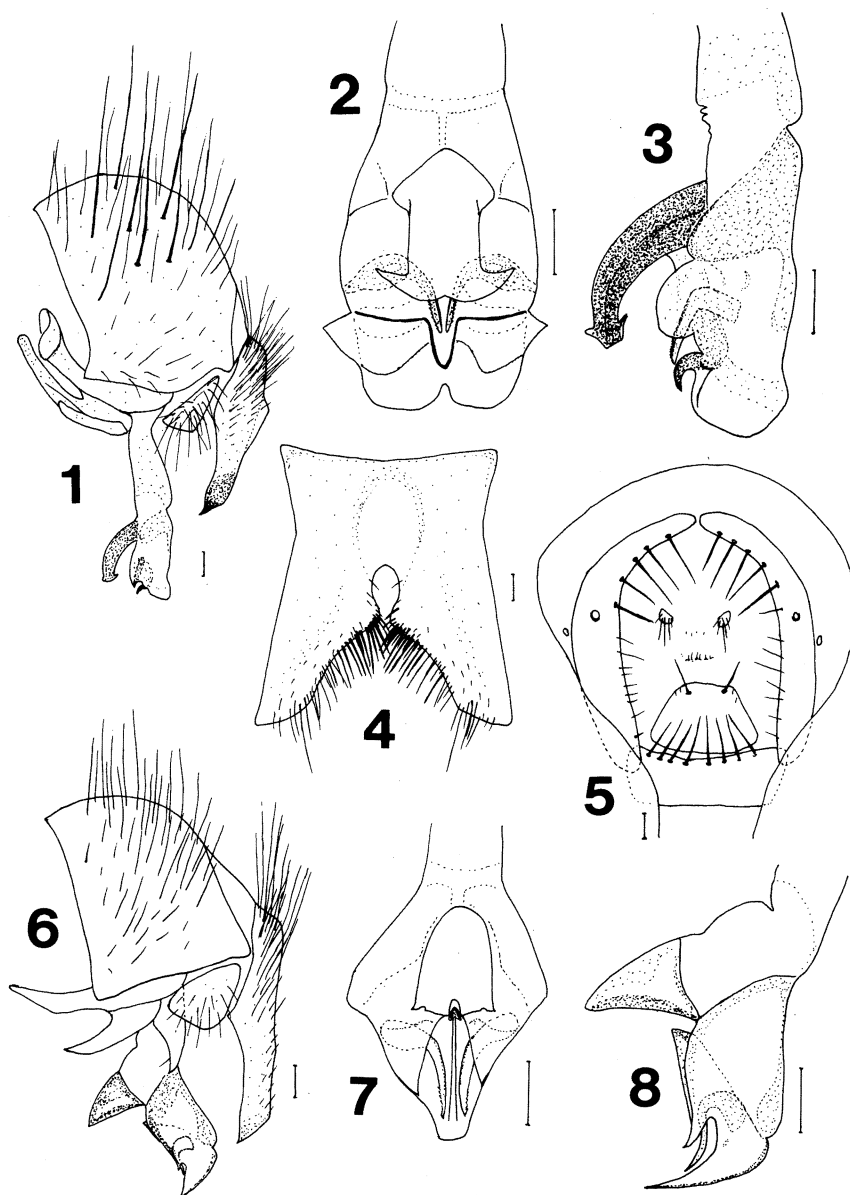
Head: Frons 0.22 of head width at the narrowest part; frontal vitta black; parafrontalia and parafacialia silvery pruinose; *ori* 9-12, strong, lower 3 divergent below; profrons relatively prominent; 1st and 2nd antennal segments black, 3rd segment dark brown, 2.3× of 2nd segment; arista plumose on basal two-thirds; palpi slender, black; gena with black hairs; metacephalon and occiput with white hairs; 3-4 rows of postocular setae black.

Thorax: Scutum grayish pollinose with three longitudinal black stripes; *ac* 3-4+1; *dc* 4+3; *ia* 1+2-3; *prs* 1; *h* 3; *ph* 3; *nt* 4; *sa* 3; *pa* 2; *aps* 1; *ds* 1; *ls* 2; *st* 1+1+1; propleuron with black hairs.

Wings: Hyaline; *r*₁ bare; setae on *r*₄₊₅ extending to four-fifths from the basal node to *r-m*; epaulet black; basicosta yellow; squamae creamy white.

Legs: Black; *t*₁ with 2-3 *ad* and 1 *pl*; *t*₂ with 2 *ad*, 2-4 *pd*, 1 *pl* and 0-1 *v*; *t*₃ with a row of *ad*, 2-3 *av* and 2-3 *pd*, long hairs absent.

Abdomen: Black with silvery checkered pattern; 3rd tergite without median marginal bristles; 1st genital tergite with weak marginal bristles; epandrium with



Figs. 1-5: *Sarcophaga fenchihuensis* SUGIYAMA, n. sp. 1: Male genitalia, lateral view. 2: Aedeagus, front view. 3: Aedeagus, lateral view. 4: Male 5th sternite. 5: Female genitalia. The bar indicates 0.1 mm in Figs. 1-20.

Figs. 6-8: *Sarcophaga lini* SUGIYAMA, n. sp. 6: Male genitalia, lateral view. 7: Aedeagus, front view. 8: Aedeagus, lateral view.

many long black hairs; anterior paramere long; 5th sternite and hypopigium as shown in Figs. 1-4; vesica strongly sclerotized; harpes small; juxta almost membranous but anterior margin sclerotized; styli short.

Female. Body length 7.7–8.3 mm.

General characters similar to those of the male. Frons 0.27 of head width at the narrowest part; 2 proclinate and 1 reclinate *ors* present; *aps* absent; abdomen wide, round shape; genitalia as shown in Fig. 5.

Holotype: Male. Fenchihu, Chiai Hsien, Taiwan, 4 IV. 1965, R. KANO. Holotype is deposited in the collection of the National Science Museum, Tokyo.

Paratypes: 1 ♀, same data as holotype; 3 ♂♂, 3 ♀♀, Fenchihu, Chiai Hsien, 12 IV. 1965, R. KANO; 1 ♀, Fenchihu, Chiai Hsien, 31 V. 1970, H. KURAHASHI; 2 ♂♂, Fenchihu, Chiai Hsien, 1 VI. 1970, H. KURAHASHI; 1 ♀, Fenchihu 1400 m, Chiai Hsien, 8 VII. 1985, S. SHINONAGA.

Distribution: Taiwan (Fenchihu).

16 *Sarcophaga formosensis* (KIRNER et LOPES, 1961)

Boettcherisca formosensis KIRNER et LOPES, 1961, *Mem. Inst. Oswaldo Cruz*, **59**: 65. Type locality: Taipei-Taokian Road, Taiwan.

Boettcherisca chianshanensis MA, 1964, *Acta zootax. sin.*, **1**: 58. Type locality: Chianshan, Liaoning, China.

This species is not so abundant.

Distribution: Taiwan; China.

Specimens examined: 3 ♂♂, Kenting Park, Pingtung Hsien, 2 IV. 1965, R. KANO; 1 ♂, Kuantsuling 250 m, Tainan Hsien, 6 IV. 1965, R. KANO; 1 ♂, Wulai, Taipei Hsien, 21 IX. 1965, K. KANEKO; 4 ♂♂, Janai (Mushia), Nantou Hsien, 28 IX. 1965, K. KANEKO; 1 ♂, 1 ♀, Kenting Park, Pingtung Hsien, 13 VI. 1972, H. M. LIN; 6 ♂♂, 1 ♀, Kenting Park, Pingtung Hsien, 13 III. 1981, M. IWASA; 1 ♀, Kuantsuling, Tainan Hsien, 11 VII. 1985, S. SHINONAGA; 2 ♂♂, 1 ♀, Liuknei, Kaohsing Hsien, 12 VII. 1985, S. SHINONAGA; 1 ♀, Chihpen, Taitung Hsien, 20 VII. 1985, S. SHINONAGA; 2 ♂♂, Lushan 1000 m, Nantou Hsien, 24–25 VII. 1985, S. SHINONAGA.

17 *Sarcophaga gracilior* (CHEN, 1975) n. comb.

Tricholioproctia (Hamimembrana) gracilior CHEN, 1975, *Acta ent. sin.*, **18**: 115. Type locality: Tienmu-shan, Chekiang, China.

Rare species. This species is recorded here from Taiwan and Nepal for the first time.

Distribution: Taiwan; China, Nepal.

Specimens examined: 1 ♂, Chingliu, Jenai, Taiwan, 27 V. 1972, R. KANO; 2 ♀♀, Tsiufeng, Taiwan, 28 V. 1972, R. KANO; 1 ♂, 1 ♀, Nanshanchi, Nantou Hsien, Taiwan, H. M. LIN; 1 ♀, Godavari (Summit), Kathomandu, Nepal, 13 VI. 1964, R. KANO; 1 ♀, Godavari, Kathomandu, Nepal, 11 VII. 1964, R. KANO.

18 *Sarcophaga gravelyi* SENIOR-WHITE, 1924

Sarcophaga gravelyi SENIOR-WHITE, 1924, *Res. Indian Mus.*, **26**: 229. Type locality: East Godavary District, Kulla, India.

Relatively rare species.

Distribution: Taiwan; China, India, Nepal, Ryukyu Is., Thailand; Japan, Korea.

Specimen examined: 2♂♂, 3♀♀, Tsuifeng, 28 V. 1972, H. M. LIN; 2♂♂, 6♀♀, Tsuifeng, 28 V. 1972, R. KANO; 1♂, Tsuifeng, H. M. LIN; 2♂♂, 1♀, Tsuifeng, 29 V. 1972, R. KANO; 1♂, Chia Paotai Park, Taitung Hsien, 4 X. 1985, K. KANMIYA.

19 *Sarcophaga hainanensis* HO, 1936

Sarcophaga hainanensis HO, 1936, *Bull. Fan Mem. Inst. Biol.*, **6**: 210. Type locality: Hainan Island, China.

Common species.

Distribution: Taiwan, China, Hainan Is.

Specimens examined: 11♂♂, 13♀♀, Kuantsuling 250 m, Tainan Hsien, 6 IV. 1965, R. KANO; 12♂♂, 5♀♀, Chuchi 120 m, Chiayi Hsien, 13 IV. 1965, R. KANO; 30♂♂, 7♀♀, Chuchi 120 m, Chiayi Hsien, 14 IV. 1965, R. KANO; 1♀, Shihiting, 18 V. 1972, H. M. LIN; 1♀, Chilanshan, 23, V. 1972, R. KANO.

20 *Sarcophaga hervebazini* SÉGUY, 1934

Sarcophaga hervebazini SÉGUY, 1934, *Encycl. Ent. (B) II, Dipt.*, **7**: 26. Type locality: Zi-ka-wei, China.

Common species.

Distribution: Taiwan; China; Japan, Korea.

Specimens examined: 1♂, 2♀♀, Kuantsuling (250 m), Tainan Hsien, 6 IV. 1965, R. KANO; 2♂♂, 4♀♀, Wulai 150 m, Taipei Hsien, 17 IV. 1965, R. KANO; 48♂♂, 14♀♀, Cihpen, Taitung Hsien, 13 X. 1965, K. KANEKO; 2♂♂, Laanung, Kaohsiung Hsien, 11 VII. 1985, S. SHINONAGA; 1♂, 1♀, Sheuchia, Pingtung Hsien, 14 VII. 1985, S. SHINONAGA; 2♂♂, Nanshanchi, Nantou Hsien, 26 VI. 1985, S. SHINONAGA; 1♀, Juisui, Hualien Hsien, 10 XI. 1985, K. KANMIYA.

21 *Sarcophaga idmais* SÉGUY, 1934

Sarcophaga idmais SÉGUY, 1934, *Encycl. Ent. (B) II, Dipt.*, **7**: 24. Type locality: Kou-ling, China.

Rare species.

Distribution: Taiwan; China, Nepal.

Specimens examined: 4♂♂, 1♀, Fenchihu, Chiayi Hsien, 12 IV. 1965, R. KANO; 1♂, Puli, Nantou Hsien, 26 IX. 1965, K. KANEKO; 1♂, Kuantsuling, Tainan Hsien, 7 VI. 1970, H. KURAHASHI.

Remarks: VERVES (1986) treated this species as a synonym of *Sarcophaga scopariiformis* SENIOR-WHITE, but these two are clearly different species. The shape of juxtal process is slender in case of *S. idmais*, but it is stout and its apex is large in case of

S. scopariiformis.

22 *Sarcophaga inextricata* WALKER, 1860

Sarcophaga inextricata WALKER, 1860, *J. Proc. Linn. Soc. Lond., Zool.*, 1: 132. Type locality: Makassar, Sulawesi, Indonesia.

Sarcophaga antilope Boettcher, 1913, *Annl. hist.-nat. Mus. natn. hung.*, 11: 374. Type locality: Taiwan.

Common species.

Distribution: Taiwan; Borneo, China, Hainan Is., India, Java, Nepal, Philippines, Ryukyu Is., Sri Lanka, Thailand; Australia, Bismarck Arch., Japan, Korea, New Guinea, Solomon Is., USSR (Far East).

Specimens examined: 3♀♀, Hotso (Roshan), Nantou Hsien, 30 IX. 1965, K. KANEKO; 3♂♂, 2♀♀, Chingliu, Jenai, 27, V. 1972, R. KANO; 16♂♂, 5♀♀, Nanshan-chi, Nantou Hsien, 30 V. 1972, R. KANO; 11♂♂, 8♀♀, Nanshan-chi, Nantou Hsien, 30 V. 1972, H. M. LIN; 1♂, Lanhsu Is., Taitung Hsien, 17-19, VII. 1985, S. SHINONAGA; 1♂, Lushan 1000 m, Nantou Hsien, 24-25 VII. 1985, S. SHINONAGA; 2♂♂, Chia Paotai Park, Taitung Hsien, 4 X. 1985, K. KANMIYA; 2♂♂, Kukan, Taitung Hsien, 3 XI. 1985, K. KANMIYA.

23 *Sarcophaga iwuensis* HO, 1934

Sarcophaga iwuensis HO, 1934, *Bull. Fan Mem. Inst. Biol.*, 5: 34. Type locality: Iwu Hsien, Chekiang, China.

Rare species. This species is recorded here from Taiwan and Nepal for the first time.

Distribution: Taiwan (Pingtung Hsien); China, Hainan Is., Nepal.

Specimens examined: 3♂♂, Kenting Park, Pingtung Hsien, Taiwan, 15 VI. 1970, H. KURAHASHI; 2♂♂, Kenting Park, Taiwan, Pingtung Hsien, 15 VI. 1970, K. NISHIDA; 1♂, Godavari hill, Kathomandu, Nepal, 31 V. 1964, R. KANO; 1♂, Dakuskim Kali, Nepal, 2 VII. 1964, R. KANO; 3♂♂, Thankot, Kathomandu, Nepal, 10 VII. 1964, R. KANO.

24 *Sarcophaga josephi* BOETTCHER, 1912

Sarcophaga josephi BOETTCHER, 1912, *Ent. Mitt.*, 1: 168. Type locality: Taiwan.

Rare species in Taiwan.

Distribution: Taiwan; China, Ryukyu Is.; Japan, Korea.

Specimen examined: 1♂, Lanhsu Is., Taitung Hsien, 17-19 VII. 1985, S. SHINONAGA.

25 *Sarcophaga lini* SUGIYAMA, n. sp.

(Figs. 6-8)

Male. Body length 7.6-10 mm.

Head: Frons 0.16 of head width at the narrowest part; frontal vitta black; parafrontalia and parafacialia silvery pruinose; *ori* 11-12, strong, lower three diver-

gent below; 1st and 2nd antennal segment black, 3rd segment dark brown, $2.1\times$ of 2nd segment; arista long, plumose on basal two thirds; palpi slender, black; gena with black hairs; metacephalon and occiput with white hairs; 3–4 rows of postocular setae black.

Thorax: Scutum grayish pollinose with three longitudinal black stripes; *ac* 0+1; *dc* 4+3; *ia* 1+2–3; *prs* 1; *h* 3–4; *ph* 2; *nt* 4; *sa* 3; *pa* 2; *aps* 1; *ds* 1; *ls* 2; *st* 1+1+1; propleuron bare.

Wings: Hyaline; r_1 bare; setae on r_{4+5} extending to halfway from basal node to *r-m*; squamae creamy white; epaulet black; basicosta yellow.

Legs: Black; t_1 with 2 *ad* and 1 *pv*; t_2 with 2 *ad*, 2 *pd*, 1 *pl* and 1 *v*; t_3 with a row of *ad*, 2 *av* and 2 *pd*, with several relatively long hairs on apical half of *pv* surface.

Abdomen: Black with silvery checkered pattern; 3rd tergite with median marginal bristles; 1st genital segment without marginal bristles; hypopigium as shown in Figs. 6–8; vesica well sclerotized; harpes small; median process prominent; juxtal processes absent.

Female: Unknown.

Holotype: Male, Fenchihu, Chiai Hsien, Taiwan, 12 IV. 1965, R. KANO. Holotype is deposited in the collection of the National Science Museum, Tokyo.

Distribution: Taiwan.

Remarks: The specific name of this species is dedicated to Mr. H. M. Lin, Taiwan Provincial Institute of Infectious Diseases, who kindly assisted us throughout our survey in Taiwan.

26 *Sarcophaga melanura* MEIGEN, 1826

Sarcophaga melanura MEIGEN, 1826, *Syst. Besch. europ. zweifl. Insekt.*, 5: 23. Type locality: not given (Europe).

This species is not so abundant in Taiwan.

Distribution: Taiwan; China, India, Malaysia, Ryukyu Is.; Afganistan, Europe, Iran, Iraq, Israel, Japan, Korea, Mongolia, North Africa, North America, Syria, Turkey, USSR.

Specimens examined: 1♂, 1♀, Taipei city, Taipei Hsien, 27 III. 1965, R. KANO; 1♂, 2♀♀, Taipei city, Taipei Hsien, 30 III. 1965, S. MIYAMOTO; 1♂, Hotso (Roshan), Nantou Hsien, 30 IX. 1965, K. KANEKO; 1♂, Szuchunghsi, Pingtung Hsien, 8 X. 1965, K. KANEKO; 35♂♂, 13♀♀, Ynli, Hualien Hsien, 15 X. 1965, K. KANEKO; 1♂, Tsiufeng, 28 V. 1972, H. M. LIN; 2♂♂, Tachi, 18 VI. 1972, R. KANEKO; 1♂, Kenting Park, Pingtung Hsien, 18–19 XI. 1985, K. KANMIYA.

27 *Sarcophaga membranocorporis* SUGIYAMA, n. sp.

(Figs. 9–12)

Male. Body length 8.8–9.4 mm.

Head: Frons 0.19 of head width at the narrowest part; frontal vitta black; parafrontalia and parafacialia silvery pruinose; *ori* 8–9, lower 2–3 divergent below; 1st and 2nd antennal segments black, 3rd segment dark brown, $3.3\text{--}3.5\times$ of 2nd segment; arista plumose on basal two-thirds; palpi dark brown, slender; gena with

black hairs; metacephalon and occiput with white hairs; 3-4 rows of postocular setae black.

Thorax: Scutum grayish pollinose with 3 longitudinal black stripes; *ac* 0+1; *dc* 3-4+4; *ia* 1+2-3; *prs* 1; *h* 3; *ph* 2; *nt* 4; *sa* 3; *pa* 2; *aps* 1; *ds* 1; *ls* 2; *st* 1+1+1; propleuron bare.

Wings: Hyaline; r_1 bare; setae on r_{4+5} extending to two-thirds from basal node to *r-m*; squamae creamy white; epaulet black; basicosta yellow.

Legs: Black; t_1 with 2 *ad* and 1 *pl*; t_2 with 1 *ad*, 3 *pd*, 1 *pl* and 1 *v*; t_3 with a row of *ad*, 1 *av* and 2 *pd*, with a row of long hairs on apical two-thirds of *av* and *pv* surface.

Abdomen: Black with silvery checkered pattern; 3rd tergite without median marginal bristles; 1st genital segment without marginal bristles; epandrium shiny dark brown; cercus with a large hump; 5th sternite and hypopigium as shown in Figs. 9-12; aedeagal wall almost membranous; vesica small; harpes and juxta membranous; styli short.

Female: Unknown.

Holotype: Male, Chuchi 120 m, Chiai Hsien, Taiwan, 14 IV. 1965, R. KANO. Holotype is deposited in the collection of the National Science Museum, Tokyo.

Paratypes: 1♂, Kuantsuling 250 m, Tainan Hsien, 6 IV. 1965, R. KANO; 1♂, Kuantsuling, Tainan Hsien, 7 IV. 1965, R. KANO; 3♂♂, Chuchi 120 m, Chiai Hsien, 14 IV. 1965, R. KANO; 6♂♂, Kuantsuling, Tainan Hsien, 7 IV. 1970, H. KURAHASHI; 2♂♂, Laanung, Kaohsiung Hsien, 11 VII. 1985, S. SHINONAGA; 1♂, Laonung-Liuknei, Kaohsiung Hsien, 12 VII. 1985, H. SHIMA.

Distribution: Taiwan.

28 *Sarcophaga misera* WALKER, 1849

Sarcophaga misera WALKER, 1849, *List Dipt. Brit. Mus.*, 4: 829. Type locality: "New Holland" (Australia).

Sarcophaga orchidea BOETTCHER, 1913, *Annl. hist.-nat. Mus. natn. hung.*, 11: 375. Type locality: Taiwan.

Common species.

Distribution: Taiwan; Borneo, Burma, China, Hainan Is., India, Java, Philippines, Ryukyu Is., Sri Lanka, Sumatra, Thailand; Afganistan, Korea, Japan, widespread Pacific to New Guinea and Australia.

Specimens examined: 2♂♂, 1♀ Peitou, Taipei Hsien, 23 IX. 1965, K. KANEKO; 1♂, 7♀♀, Puli, Nantou Hsien, 26 IX. 1965, K. KANEKO; 6♂♂, 3♀♀, Chuchi, Chiai Hsien, 5 X. 1965, K. KANEKO; 2♀♀, Oluanpi, Pingtung Hsien, 11 X. 1965, K. KANEKO; 10♂♂, 5♀♀, Chihpen, Taitung Hsien, 13 X. 1965, K. KANEKO; 3♂♂, 1♀, Santimen, Pingtung Hsien, 13 VII. 1985, S. SHINONAGA; 4♂♂, 1♀, Lanhsu Is., Taitung Hsien, 17-19 VII. 1985, S. SHINONAGA; 1♀, Lanhsu Is., Taitung Hsien, 17-19 VII. 1985, H. SHIMA; 1♀, Antung, Hualien Hsien, 12 XI. 1985, K. KANMIYA; 1♂, Kenting Park, Pingtung Hsien, 18-19 XI. 1985, K. KANMIYA.

29 *Sarcophaga nigribasicosta* (CHEN, 1975) n. comb.

Dinemomyia nigribasicosta CHEN, 1975, *Acta ent. sin.*, **18**: 114. Type locality: Tienmu-Shan, Chekiang, China.

Rare species. This species is recorded here from Taiwan for the first time.

Distribution: Taiwan (Alishan); China.

Specimens examined: 10 ♂♂, Alishan 2270 m, Chiai Hsien, 9 IV. 1965, R. KANO; 1 ♀, Alishan 2300 m, Chiai Hsien, 4 VI. 1970, H. KURAHASHI; 1 ♂, Alishan, Chiai Hsien, 3 VI. 1972, H. M. LIN.

30 *Sarcophaga ostindicae* SENIOR-WHITE, 1924

Sarcophaga ostindicae SENIOR-WHITE, 1924, *Rec. Indian Mus.*, **26**: 233. Type locality: "E. India"

Rare species.

Distribution: Taiwan; China, Hainan Is., India.

Specimens examined: 1 ♂, Kotzulin 850 m, Chiai Hsien, 14 IV. 1965, S. UENO; 1 ♂, Kenting Park, Pingtung Hsien, 11 VI. 1970, H. KURAHASHI; 1 ♂, Chihpen, Taitung Hsien, 15 XI. 1985, K. KANMIYA.

31 *Sarcophaga pattoni* SENIOR-WHITE, 1924

Sarcophaga pattoni SENIOR-WHITE, 1924, *Rec. Indian Mus.*, **26**: 242. Type locality: Coonoor, Nilgiri Hills, India.

Sarcophaga pilipleuris SALEM, 1945, *Bull. Inst. Egypt.*, **27**: 192. Type locality: Batavia, Java, Indonesia. (n. syn.)

Distribution: Taiwan; China, Java, India, Viet Nam.

Specimens examined: 1 ♂, Chingliu, Jenai, Nantou Hsien, 21 XII. 1958, J. K. NI; 1 ♂, Tungpien, Taiping, Taichung Hsien, 29 VII. 1959, J. K. NI.

32 *Sarcophaga peregrina* (ROBINEAU-DESVOIDY, 1830)

Myophora peregrina ROBINEAU-DESVOIDY, 1830, *Mem. pres. Acad. Sci. Inst. Fr.*, (2) **2**: 356. Type locality: Port Jackson, Sydney, Australia.

Common species.

Distribution: Taiwan; Borneo, China, Hainan Is., India, Malaysia, Ryukyu Is., Sri Lanka; Australia, Fiji, Gilbert Is., Hawaii, Japan, Korea, Madagascar, Mariana Is., New Britain, New Guinea, Samoa, Seychelles, Society Is., USSR.

Specimens examined: 2 ♂♂, 1 ♀, Chuchi 120 m, Chiai Hsien, 13 IV. 1965, R. KANO; 5 ♂♂, 2 ♀♀, Ynli, Hualien Hsien, 15 X. 1965, K. KANEKO; 3 ♂♂, Fenchihu 1400 m, Chiai Hsien, 8 VII. 1985, H. M. LIN; 1 ♂, Santimen, Pingtung Hsien, 13 VII. 1985, S. SHINONAGA; 1 ♀, Lanhsu Is., Taitung Hsien, 17–19 VII. 1985, S. SHINONAGA; 2 ♂♂, Kenting Park, Pingtung Hsien, 18–19 XI. 1985, K. KANMIYA; 3 ♂♂, 1 ♀, Fenchihu,

Chiai Hsien, 20 XI. 1985, K. KANMIYA.

33 *Sarcophaga prosbaliina* BARANOV, 1931

Sarcophaga prosbaliina BARANOV, 1931, *Konowia*, **10**: 112. Type locality: Toa-Tsui-Kutsu, Taiwan.

Common species.

Distribution: Taiwan.

Specimens examined: 1♂, Kenting Park, Pingtung Hsien, 3 IV. 1965, R. KANO; 2♂♂, 3♀♀, Fenchihu, Chiai Hsien, 4 IV. 1965, R. KANO; 2♀♀, Alishan 2270 m, Chiai Hsien, 9 IV. 1965, R. KANO; 7♂♂, 1♀, Fenchihu 1370 m, Chiai Hsien, 10 IV. 1965, R. KANO; 1♂, 1♀, Janai (Mushia), Nantou Hsien, 28 IX. 1965, K. KANEKO; 10♂♂, 3♀♀, Tsuifeng, Nantou Hsien, 29 V. 1972, R. KANO; 2♂♂, 1♀, Tsuifeng, Nantou Hsien, 29 V. 1972, H. M. LIN; 1♂, 1♀, Tsupun, Taitung Hsien, 21 III. 1981, M. IWASA; 1♂, 1♀, Tsuchung-Tatachiaanpu, Chiai Hsien, 6 VII. 1985, H. M. LIN; 1♂, Lanhsu Is., Taitung Hsien, 17-19 VII. 1985, S. SHINONAGA; 1♂, Lanhsu Is., Taitung Hsien, 17-19 VII. 1985, H. SHIMA; 4♂♂, 1♀, Lenai 1000 m, Nantou Hsien, 23 VII. 1985, S. SHINONAGA; 1♂, 1♀, Lushan 1000 m, Nantou Hsien, 23 VII. 1985, S. SHINONAGA; 2♂♂, 1♀, Hohuanshan-Tsuifeng 2400 m, Nantou Hsien, 23 VII. 1985, H. SHIMA; 1♂, Yuankan-Tsuifeng, 23 VII. 1985, H. SHIMA.

34 *Sarcophaga ruficornis* (FABRICIUS, 1794)

Musca ruficornis Fabricius, 1794, *Ent. Syst.*, **4**: 314. Type locality: East India.

Rare species in Taiwan.

Distribution: Taiwan; China, India, Malaysia, Philippines, Ryukyu Is., Sri Lanka, Sumatra; Africa, Brazil, Hawaii, Madagascar, Mariana Is., Moluccas, Samoa, Socotra.

Specimens examined: 1♀, Chuchi, Chiai Hsien, 5 X. 1965, K. KANEKO; 1♀, Ynli, Hualien Hsien, 15 X. 1965, K. KANEKO.

35 *Sarcophaga schuetzei* KRAMER, 1909

Sarcophaga schuetzei KRAMER, 1909, *Ent. Rdsch.*, **26**: 83. Type locality: Oberlausitz, DDR.

Rare species. This species is recorded here from Taiwan for the first time.

Distribution: Taiwan; China; Europe, Japan, Korea, Mongolia, USSR.

Specimens examined: 1♂, Tsuifeng, Nantou Hsien, 28 V. 1972, R. KANO; 2♂♂, Tsuifeng, Nantou Hsien, 28 V. 1972, H. M. LIN; 4♂♂, Tsuifeng, Nantou Hsien, 29 V. 1972, R. KANO.

36 *Sarcophaga scopariiformis* SENIOR-WHITE, 1927

Sarcophaga dux THOMSON var. *scopariiformis* SENIOR-WHITE, 1927, *Spolia zeylan.*, **14**: 82. Type locality: Matale, Sri Lanka.

Rare species. This species is recorded here from Taiwan for the first time.

Distribution : Taiwan ; China, Hainan Is., Sri Lanka.

Specimen examined : 1♂, Chuchi, Chiai Hsien, 5 X. 1965, K. KANEKO.

37 *Sarcophaga sericea* WALKER, 1852

Sarcophaga sericea WALKER, 1852, *Ins. Saunders.*, *Dipt.*, 4 : 326. Type locality : India.

Sarcophaga knabi PARKER, 1917, *Proc. U. S. nat. Mus.*, 54 : 66. Type locality : Philippines.

Sarcophaga (Parasarcophaga) omega JOHNSTON et TIEGS, 1921, *Proc. R. Soc. Qd.*, 33 : 86. Type locality : Brisbane, Queensland, Australia.

Common species.

Distribution : Taiwan ; Andaman Is., Bali, Borneo, Burma, China, Hainan Is., India, Java, Malaysia, Nepal, Philippines, Sri Lanka ; Australia, Caroline Is., Korea, Mariana Is., Marshall Is., New Guinea, Society Is., USSR.

Specimens examined : 9♂♂, 1♀, Hengchun, Nanwan, Pingtung Hsien, 4 IV. 1965, R. KANO ; 4♂♂, Kuantsuling, Tainan Hsien, 7 IV. 1965, R. KANO ; 3♂♂, 1♀, Peitou, Taipei Hsien, 23 IX. 1965, K. KANEKO ; 3♂♂, 3♀♀, Puli, Nantou Hsien, 25 IX. 1965, K. KANEKO ; 3♂♂, 2♀♀, Oluanpi, Pingtung Hsien, 11 X. 1965, K. KANEKO ; 7♂♂, 3♀♀, Ynli, Hualien Hsien, 15 X. 1965, K. KANEKO ; 31♂♂, 4♀♀, Lanhsu Is., Taitung Hsien, 17–19 VII. 1985, S. SHINONAGA ; 3♂♂, 3♀♀, Lanhsu Is., Taitung Hsien, 17–19 VII. 1985, H. SHIMA ; 2♂♂, 1♀, Santimen, Pingtung Hsien, 13 VII. 1985, S. SHINONAGA ; 2♂♂, 1♀, Kenting Park, Pingtung Hsien, 18–19 XI. 1985, K. KANMIYA.

38 *Sarcophaga serrata* Ho, 1938

Sarcophaga serrata HO, 1938, *Ann. Trop. Med. Parasit.*, 32 : 120. Type locality : Djampong, Java, Indonesia.

Common species.

Distribution : Taiwan ; Borneo, Java.

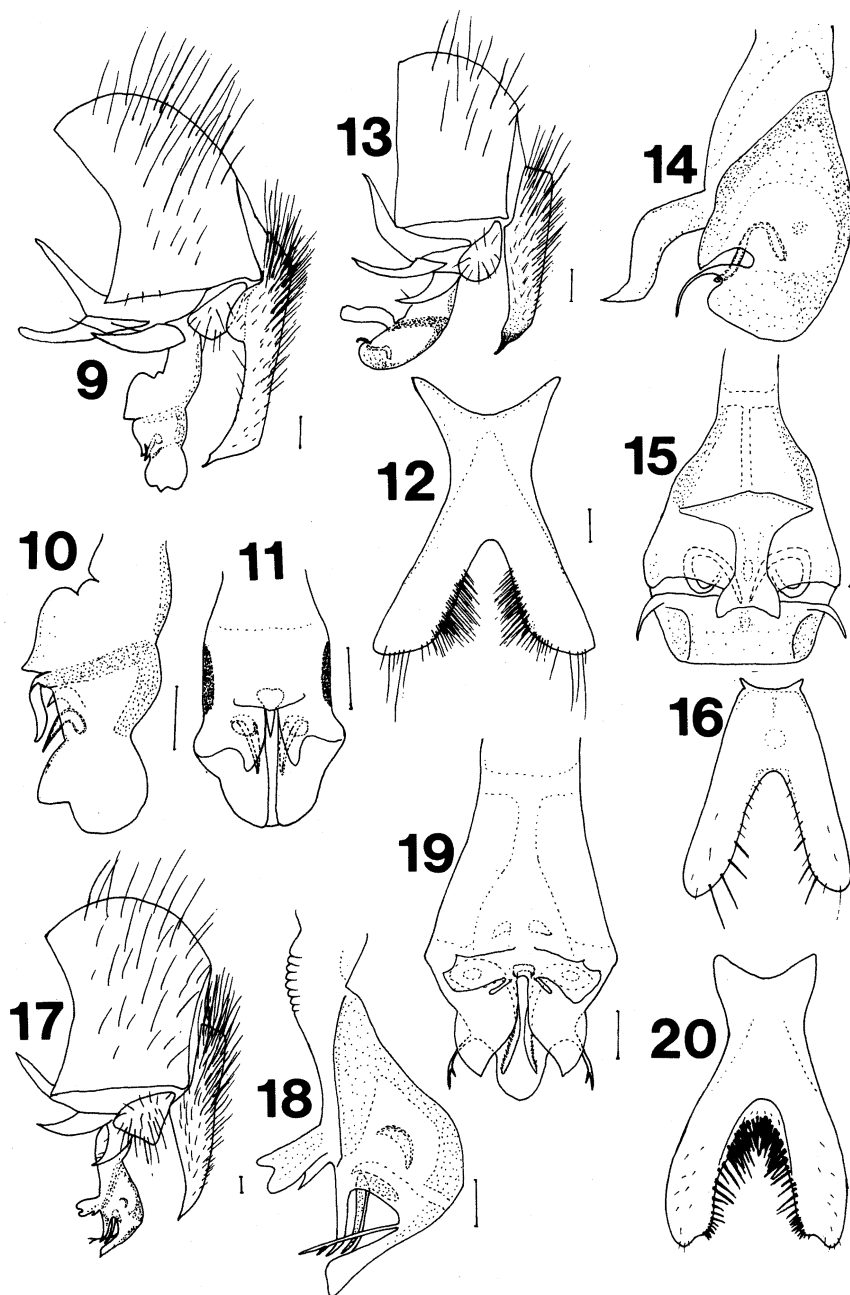
Specimens examined : 6♂♂, 1♀, Kenting Park, Pingtung Hsien, 3 IV. 1965, R. KANO ; 17♂♂, 2♀♀, Kuantsuling 250 m, Tainan Hsien, 6 IV. 1965, R. KANO ; 4♂♂, 1♀, Chuchi 120 m, Chiai Hsien, 14 IV. 1965, R. KANO ; 7♂♂, 3♀♀, Kenting Park, Pingtung Hsien, 13 III. 1981, M. IWASA ; 4♂♂, 1♀, Laanung, Kaohsiung Hsien, 11 VII. 1985, S. SHINONAGA ; 4♂♂, Liuknei, Kaohsiung Hsien, 12 VII. 1985, S. SHINONAGA ; 1♂, Santimen, Pingtung Hsien, 13 VII. 1985, S. SHINONAGA ; 3♂♂, Sheuchia, Pingtung Hsien, 14 VII. 1985, S. SHINONAGA ; 4♂♂, Kenting Park, Pingtung Hsien, 15 VII. 1985, S. SHINONAGA ; 1♂, 2♀♀, Lanhsu Is., Taitung Hsien, 17–19, VII. 1985, S. SHINONAGA ; 1♀, Chihpen, Taitung Hsien, 20 VII. 1985, S. SHINONAGA ; 1♂, Juisui, Hualien Hsien, 11 XI. 1985, K. KANMIYA ; 2♂♂, 1♀, Chihpen, Taitung Hsien, 15 XI. 1985, K. KANMIYA.

39 *Sarcophaga taiwanensis* (KANO et LOPES, 1969)

Burmanomyia taiwanensis KANO et LOPES, 1969, *Pacific Insects*, 11 : 522. Type locality : Fenchihu, Chiai Hsien, Taiwan.

Rare species.

Distribution : Taiwan (Fenchihu).



Figs. 9-12: *Sarcophaga membranocorporis* SUGIYAMA n. sp. 9: Male genitalia, lateral view. 10: Aedeagus, lateral view. 11: Aedeagus, front view. 12: Male 5th sternite.
 Figs. 13-16: *Sarcophaga tsengi* SUGIYAMA n. sp. 13: Male genitalia, lateral view. 14: Aedeagus, lateral view. 15: Aedeagus, front view. 16: Male 5th sternite.
 Figs. 17-20: *Sarcophaga tristylata* BOETTCHER, 1912. 17: Male genitalia, lateral view. 18: Aedeagus, lateral view. 19: Aedeagus, front view. 20: Male 5th sternite.

Specimens examined: 1♂, Fenchihu, Chiai Hsien, 1 VI. 1970, K. NISHIDA; 1 ♂, Fenchihu, Chiai Hsien, 2 VI. 1970, H. KURAHASHI.

40 *Sarcophaga tristylata* BOETTCHER, 1912

(Figs. 17–20)

Sarcophaga tristylata BOETTCHER, 1912, *Ent. Mitt.*, 1: 167. Type locality: Taihorinsho, Taiwan.

Male: Body length 7.6–12.7 mm.

Head: Frons 0.20 of head width at the narrowest part; frontal vitta black; parafrontalia and parafacialia golden pruinose; *ori* 9–10, lower 2–3 divergent below; 1st and 2nd antennal segment black, 3rd segment dark brown, $2.6\times$ of 2nd segment; arista plumose on basal two-thirds; palpi slender, black; gena with black hairs; metacephalon and occiput with white hairs; 3–4 rows of postocular setae black.

Thorax: Scutum grayish pollinose with 3 longitudinal black stripes; *ac* 0+1; *dc* 4–5+5; *ia* 1+3; *prs* 1; *h* 3; *ph* 2; *nt* 4; *sa* 3; *pa* 2; *aps* 1; *ds* 1; *ls* 2; *st* 1+1+1; posterior 2 pairs of post-*dc* bristles strong; propleuron bare.

Wings: Hyaline; r_1 bare; setae on r_{4+5} extending to two-thirds from basal node to *r-m*; squamae creamy white; epaulet black; basicosta yellow.

Legs: Black; t_1 with 2 *ad* and 1 *pl*; t_2 with 1 *ad*, 3 *pd*, 1 *pl* and 1 *v*; t_3 with a row of *ad*, 1–2 *av* and 2–3 *pd*, with some long hairs on apical two-thirds of *pv* surface.

Abdomen: Black with silvery checkered pattern; 3rd tergite without median marginal bristles; 1st genital segment without marginal bristles; epandrium shiny dark brown; 5th sternite and hypopigium as shown in Figs. 17–20; juxtal process very thin and with bifurcate apex.

Female: Unknown.

Distribution: Taiwan.

Specimens examined: 1♂, Kenting Park, Pingtung Hsien, 3 IV. 1965, R. KANO; 16♂♂, Kuantsuling 250 m, Tainan Hsien, 6 IV. 1965, R. KANO; 17♂♂, Chuchi, Chiai Hsien, 14 IV. 1965, R. KANO; 11♂♂, Chihpen, Taitung Hsien, 13 X. 1965, K. KANEKO; 1♂, Laanung, Kaohsiung Hsien, 11 VII. 1985, S. SHINONAGA; 3♂♂, Liuknei, Kaohsiung Hsien, 12 VII. 1985, S. SHINONAGA; 1♂, Laonung–Liuknei, Kaohsiung Hsien, 12 VII. 1985, H. SHIMA; 1♂, Sheuchia, Pingtung Hsien, 14 VII. 1985, S. SHINONAGA; 1♂, Lanhsu Is., Taitung Hsien, 17–19 VII. 1985, S. SHINONAGA; 2♂♂, Chihpen, Taitung Hsien, 20 VII. 1985, S. SHINONAGA; 1♂, Chihpen, Taitung Hsien, 20 VII. 1985, H. SHIMA; 1♂, Juisui, Hualien Hsien, 11 XI. 1985, K. KANMIYA; 1♂, Chihpen, Taitung Hsien, 15 XI. 1985, K. KANMIYA.

41 *Sarcophaga tsengi* SUGIYAMA, n. sp.

(Figs. 13–16)

Male: Body length 6.5–8.0 mm.

Head: Frons 0.15 of head width at the narrowest part; frontal vitta black; parafrontalia and parafacialia silvery pruinose; *ori* 9–10, lower 2 divergent below; 1st and 2nd antennal segment black, 3rd segment dark brown, $2.3\times$ of 2nd segment; arista plumose on basal two-thirds; palpi slender, black; gena with black hairs; metacephalon and occiput with white hairs; 3–4 rows of postocular setae black.

Thorax: Scutum grayish pollinose with 3 longitudinal black stripes; *ac* 0+1; *dc* 3-4+3; *ia* 1+2; *prs* 1; *h* 3; *ph* 2; *nt* 4; *sa* 3; *pa* 2; *aps* 1; *ds* 1; *ls* 2; *st* 1+1+1; propleuron with a few black hairs.

Wings: Hyaline; r_1 bare; setae on r_{4+5} extending to more than two-thirds from basal node to *r-m*; squamae creamy white; epaulet black; basicosta yellow.

Legs: Black; t_1 with 2 *ad* and 1 *pv*; t_2 with 2 *ad*, 2 *pd*, 1 *pl* and 1 *v*; t_3 with a row of *ad*, 3 *av* and 2 *pd*, with some long hairs on apical two-thirds of *pv* surface.

Abdomen: Black with silvery checkered pattern; 3rd tergite with median marginal bristles; 1st genital segment without marginal bristles; epandrium shiny dark brown; cercus pointed; 5th sternite and hypopigium as shown in Figs. 13-16; vesica large and prominent; juxtal processes slender.

Female: Unknown.

Holotype: Male, Kuantsuling, Tainan Hsien, Taiwan, 7 VI. 1970, K. NISHIDA. Holotype is deposited in the collection of the National Science Museum, Tokyo.

Paratypes: 2♂♂, Kuantsuling, Tainan Hsien, 7 VI. 1970, K. NISHIDA; 1♂, Kenting Park, Pingtung Hsien, 11 VI. 1970, H. KURAHASHI.

Distribution: Taiwan.

Remarks: The specific name of this species is dedicated to Dr. P. T. Tseng, Taiwan Provincial Institute of Infectious Diseases, who kindly helped us throughout our survey in Taiwan.

42 *Sarcophaga tuberosa* PANDELLÉ, 1896

Sarcophaga tuberosa PANDELLÉ, 1896, *Rev. Ent.*, 15: 192. Type locality: Tarbes, Hautes-Pyrenees, France.

Distribution: Taiwan; China, Ryukyu Is.; Europe, Japan, Korea, Mongolia, North America, USSR.

We did not examine specimens from Taiwan. BOETTCHER (1912) recorded *S. tuberosa* from Taiwan.

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