

## SARCOPHAGID FLIES (DIPTERA: SARCOPHAGIDAE) FROM TRIPURA, INDIA

B. C. NANDI

Krishnanagar Govt. College, Nadia, India

*Systematic position of seventeen species under nine genera are reported here. Sinonipponia smarti is described as new species. Lioproctia (Coonorina) pattoni (Senior-White) is redescribed and figured.*

Key words: Sarcophagidae – Diptera – Tripura – India

Nothing is known regarding the Sarcophagid flies from Tripura. The author collected a good number of these flies from different parts of Tripura in 1989. A total of seventeen species are reported here for the first time from this state. All the species are placed in a proper systematic position and distributional records of these flies are included.

The type materials will be deposited in the National Collections of Zoological Survey of India, Calcutta, in due course.

The author is thankful to the Principal and Head of the Department of Zoology, Krishnanagar Govt. College for possible help during research period. He expresses his gratitude to the Director, Zoological Survey of India for permission to work on this group. He is also grateful to Prof. H. de Souza Lopes of Brazil for going through the manuscript.

### Systematic accounts

Subfamily : Sarcophaginae

Tribe : Sarcophagini

Subtribe : Parasarcophagina

*Boettcherisca (s. str.) peregrina*  
(Robineau-Desvoidy, 1830)

*Myophora peregrina* Robineau-Desvoidy, 1830, 356.

*Boettcherisca (s. str.) peregrina* Nandi, 1988, 12.

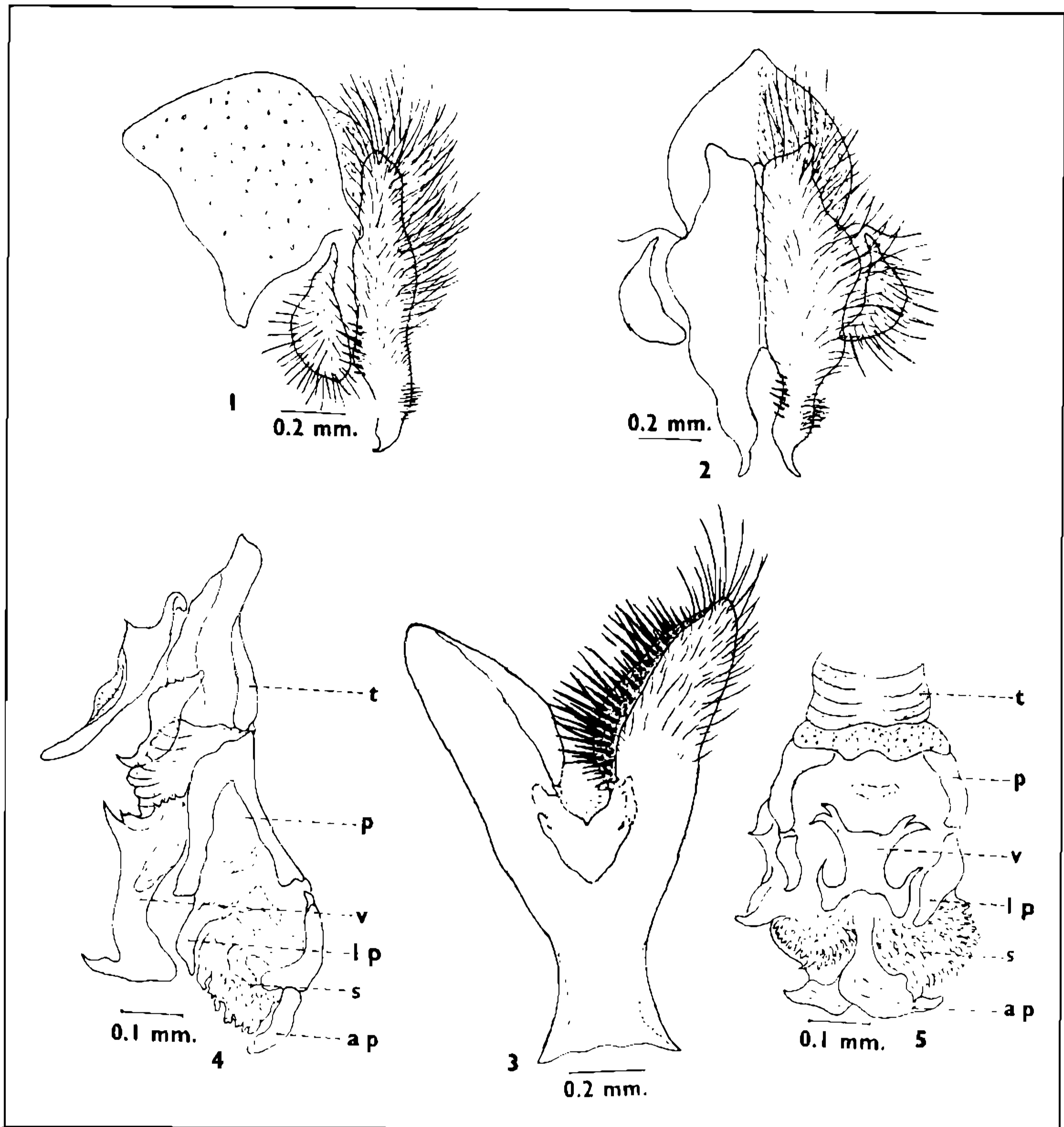
*Specimen examined*: one male, Matabari, 24.vi.1989; one male, Melaghar, 30.vi.1989.

*Lioproctia (Coonorina) pattoni*  
(Senior-White, 1924)  
(Figs 1-5)

*Sarcophaga pattoni* Senior-White, 1924, 242.

*Lioproctia (Coonorina) pattoni* Lopes, Kano, Shinonaga and Kurahashi, 1977, 567.

*Male*: length 13-15 mm. *Head*: Frons about more than twice that of one eye; frontal vitta black, its width at narrowest point of frons is three times that of each parafrontal; parafrontal and parafacial brownish with silvery pollen, the former with short scattered hairs and the latter with a row of short hairs near the eye margin; antennae blackish grey, reaching to about 0.8 distance to vibrissae, 1st and 2nd segments blackish with short black hairs, the latter with 1 long hair, 3rd greyish with silvery pollen, its length about three times that of the 2nd; arista long plumose in the basal two-thirds; facial ridge blackish with silvery pollen and with black spines on the lower half; vibrissae long, crossed, distance between vibrissae less than twice that of parafacial width; frontal bristles 12, arranged in a row on parafrontal, upper 2 reclinate, lower 2 below base of antennae and reaching to about half of the 2nd antennal segment, rest cruciate and directed forwards; gena black, with brownish hairs; post gena black with long hairs; outer vertical short; inner vertical well developed, the former is less than the inner vertical, post vertical shorter than the inner vertical; ocellar and post/ø ocellar short, the former shorter than the shortest parafrontal; one row of postocular setae besides postocular cilia, rest of the area with long grey hairs; mpalpi long, brownish; proboscis short, black.



*Lioproctia (Coonorina) pattoni* (Senior-White). Fig. 1: inner and outer forceps, lateral view. Fig. 2: same, posterior view. Fig. 3: fifth sternite. Fig. 4: penis, lateral view. Fig. 5: same, ventral view.

**Thorax:** Greyish with three black longitudinal stripes; *ac* 5 + 1; *dc* 5 + 4; *ia* 1 + 3; *ps* 1; *h* 1; *ph* 2; *np* 4; *sa* 2; *pa* 1; *st* 1 + 1 + 1; *mpl* 6-7;  $\emptyset$  *hpl* 9; upper part of propleura black with hairs; prostigmatic and propleural bristles well developed and accompanied with short hairs; pro- and meso-thoracic spiracles dark brown; apicoscutellar and discoscutellar bristles 1 pair each, the former is crossed; lateroscutellar bristles 2 pairs.

**Wings:** Hyaline with brown veins;  $R_1$  bare;  $R_4 + 5$  with a row of short setae (10-13) located

dorsally and extending up to half to two-thirds the distance from the distal node to r-m; several short setae present on the ventral surface of basal node of  $R_4 + 5$ ; 3rd costal segment greater than the 5th, the latter with short spines on two-third its length proximally; costal spine not stout; epaulet black with short spines; basicoastal scale yellowish; squam whitish; haltere brown.

**Legs:** Black; fore femur with two rows of bristles along posterodorsal surface and a row of bristles along posterior margin of ventral

surface; fore tibia with 3 short bristles along basal two-thirds of anterodorsal surface, 2 bristles on the posterodorsal surface at about two-thirds the distance from the basal end and with 1 bristle on anteroventral surface at about one-third the distance from the distal end; mid femur with 4 bristles along middle way of anterolateral surface, a row of short setae along the distal one-third of anteroventral and posteroventral surfaces, bearing long hairs along basal two-thirds of posterior margin of ventral surface and 1 long bristle each on posterolateral and posterodorsal surfaces distally; mid tibia with 1 long bristle on posterolateral surface at about one-third the distance from the distal end, a row of short setae along posterodorsal surface and 1 bristle on anteroventral surface at about one-fourth the distance from the distal end; hind femur with two rows of bristles along anterodorsal surface, a row of bristles along anteroventral surface at about two-third the distance from the distal end, 2 bristles on distal one-fourth of posterodorsal surface and a row of long hairs along posteroventral surface; hind tibia with a row of long bristles along anterodorsal surface, 2 bristles along posterodorsal surface on basal half and numerous long hairs along anterior and posterior margins of ventral surface.

*Abdomen:* Black with silvery grey checkered pattern; median marginal bristles on 2nd and 3rd abdominal tergites absent but each with 1 lateral marginal bristles, 4th with 1 median and 3 lateral marginal bristles; sternites with long hairs, 5th sternite Y-shaped with long setae laterally and hairs terminally; 1st and 2nd genital segments brownish with long hairs but without marginal bristles; inner forcep almost straight with short subbasal spines, outer forcep elongated with short hairs on distal end; anterior paramere almost straight, slightly pointed at end, posterior paramere curved and pointed without hairs; theca shorter than paraphallus, both are sclerotised; apical plate of paraphallus short, slightly curved and almost pointed at end and with one anterior membranous process, lateral plate of paraphallus short and pointed; ventralia long, hook-shaped with subbasal pointed projection; styli of glans short.

*Specimens examined:* one male, Vanghmun, 900 m, 20.vi.1989; four males, Kanchanpur, 21.vi.1989.

*Parasarcophaga (Liosarcophaga) brevicornis*  
(HO, 1934)

*Sarcophaga brevicornis* Ho, 1934, 23.

*Parasarcophaga (Liosarcophaga) brevicornis*  
Nandi, 1988, 13.

*Specimens examined:* Three males, Kanchanpur, 21.vi.1989; Four males, Kunjaban, 22.vi.1989; One male, Sipahijala, 23.vi.1989; Two males, Agartala Air Port area, 23.vi.1989; Two males, Trishna Wild Life Sanctuary, 26.vi.1989; One male, Betaga Forest, 28.vi.1989; Two males, Sabrum Dak Bungalow Campus, 28.vi.1989; One male, Melaghar, 30.vi.1989.

*Parasarcophaga (Liosarcophaga) dux*  
(Thomson, 1868)

*Sarcophaga dux* Thomson, 1868, 534.

*Parasarcophaga (Liosarcophaga) dux* Nandi, 1988, 14.

*Specimens examined:* Two males, Dharmanagar, 19.vi.1989; Two males, Vanghmun, 900 m, 20.vi.1989; Two males, Kanchanpur, 21.vi.1989; One male, Sipahijala, 23.vi.1989; One male, Agartala Air Port area; One male, Trishna Wild Life Sanctuary, 26.vi.1989; Two males, Belonia College Campus, 26.vi.1989; Two males, Sabrum Dak Bungalow Campus, 28.vi.1989; Four males, Melaghar, 30.vi.1989.

*Parasarcophaga (Curranea) scopariformes*  
(Senior-White, 1927)

*Sarcophaga scopariformes* Senior-White, 1927, 82.

*Parasarcophaga (Curranea) scopariformes*  
Nandi, 1982, 119.

*Specimens examined:* Two males, Kanchanpur, 21.vi.1989; Two males, Matabari, 24.vi.1989.

*Parasarcophaga (Pandelleisca) bainbriggei*  
(Senior-White, 1925)

*Sarcophaga bainbriggei* Senior-White, 1925, 212.

*Parasarcophaga (Pandelleisca) bainbriggei*  
Nandi, 1977, 214.

*Specimens examined:* Three males, Trishna Wild Life Sanctuary, 26.vi.1989.

*Distribution:* India: Assam, Arunachal Pradesh, Bihar, Orissa, Tamil Nadu, Tripura and West Bengal.

*Parasarcophaga (s. str.) albiceps*  
(Meigen, 1925)

*Sarcophaga albiceps* Meigen, 1925, 22.

*Parasarcophaga (s. str.) albiceps* Nandi, 1988, 12.

*Specimens examined:* Four males, Dharmnagar, 19.vi.1989; Seven males, Vanghmun, 900 m, 20.vi.1989; One male, Sipahijala, 23.vi.1989; One male, Matabari, 24.vi.1989; One male, Melaghar, 30.vi.1989.

*Parasarcophaga (s. str.) knabi* (Parker, 1917)

*Sarcophaga knabi* Parker, 1917, 96.

*Parasarcophaga (s. str.) knabi* Nandi, 1988, 13.

*Specimens examined:* Three males, Dharmnaga, 19.vi.1989; Eleven males, Vanghmun, 900 m, 20.vi.1989; Six males, Sipahijala, 23.vi.1989; One male, Matabari, 24.vi.1989; Three males, Trishna Wild Life Sanctuary, 26.vi.1989; Three males, Belonia College Campus, 26.vi.1989; Two males, Betaga Forest, 28.vi.1989; One male, Melaghar, 30.vi.1989; One male, Jamerdhepa, 30.vi.1989.

*Parasarcophaga (s. str.) orchidea*  
(Böettcher, 1913)

*Sarcophaga orchidea* Böettcher, 1913, 375.

*Parasarcophaga (s. str.) orchidea* Nandi, 1988, 13.

*Specimens examined:* Two males, Dharmnagar, 19.vi.1989; One male, Vanghmun, 900 m, 20.vi.1989; Two males, Sipahijala, 23.vi.1989; One male, Melaghar, 30.vi.1989.

*Sarcorohdendorfia mysorensis* Nandi, 1988

*Sarcorohdendorfia mysorensis* Nandi, 1988, 14.

*Specimens examined:* Two males, Melaghar, 30.vi.1989.

*Distribution:* India: Karnataka and Tripura.

*Thyrsoconema (Pseudothyrsoconema)*  
*nicoborensis* Nandi, 1989 (in press)

*Thyrsoconema (Pseudothyrsoconema) nicoborensis* Nandi, 1989.

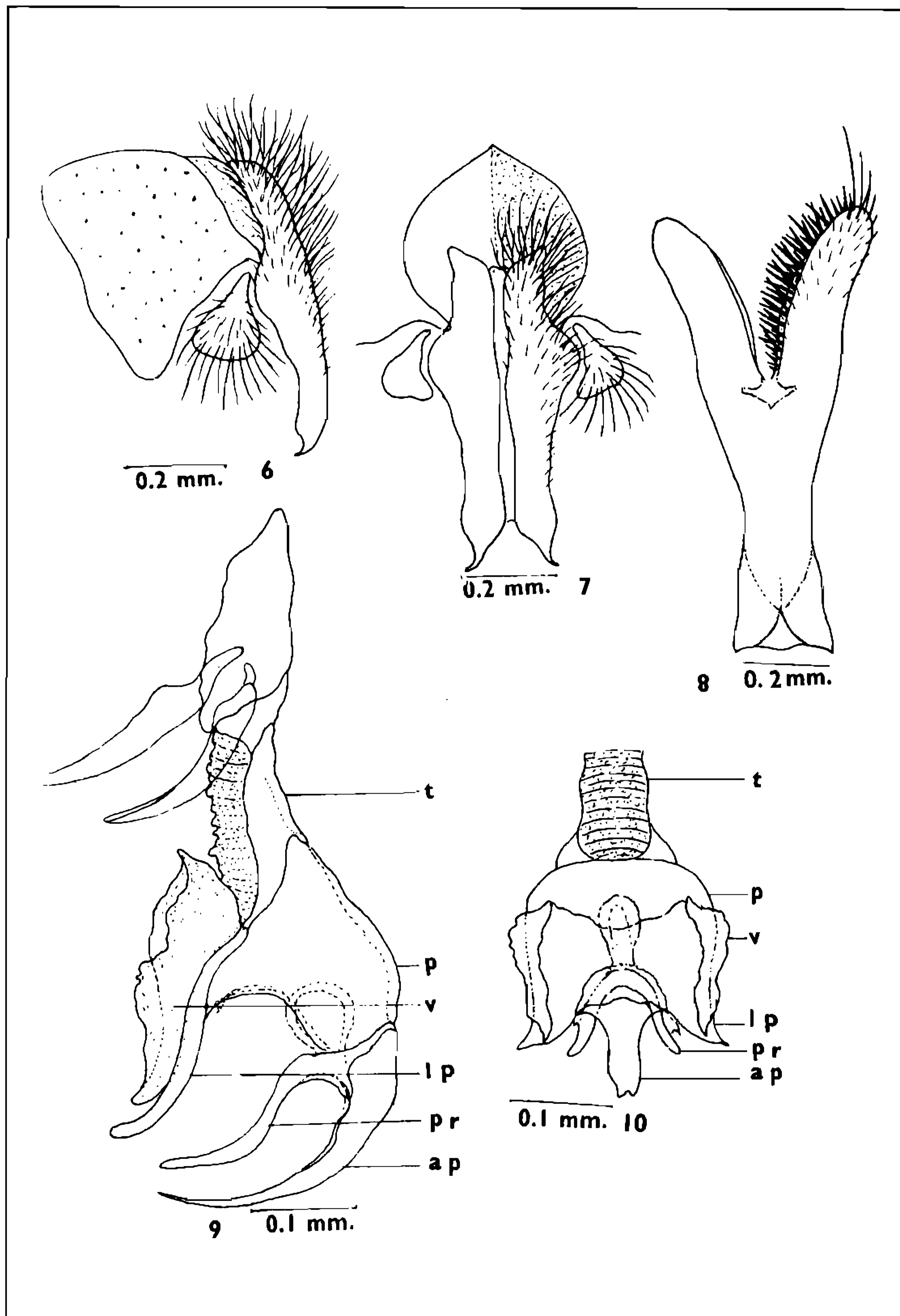
*Specimen examined:* One male, Jamerdhepa, 30.vi.1989.

*Distribution:* India: Nicobar Island and Tripura.

*Sinonipponia smarti* n. sp.  
(Figs 6-10)

*Male:* length 5-7 mm. *Head:* Frons about half that of one eye; frontal vitta brown, its width at narrowest point of frons about twice that of parafrontal; parafrontal and parafacial brown with silvery pollen, the former with short scattered hairs, the latter with a row of short hairs (4-6) near the eye margin; antennae brownish, reaching to about 0.85 distance to vibrissae, 1st and 2nd segments brownish-black with short black hairs, the latter with 1 long bristle, 3rd segment light brown with numerous silvery pollen, its length about two and half times that of the 2nd; arista long plumose in the basal three-fifths; facial ridge brownish with silvery pollen and with short black hairs; vibrissae long, crossed, distance between vibrissae about twice that of each parafacial width; frontal bristles 8-9, upper 2 reclinate, lower 3 below base of antennae and reaching to about half of the 2nd antennal segment, rest cruciate and directed forwards; gena blackish with black hairs; post gena black with greyish hairs; ocellar triangle brownish with short hairs; outer vertical long, inner vertical well developed, post vertical short about one-third the inner vertical; ocellar bristles short; post ocellar about twice that of the ocellar almost half the length of inner vertical; two rows of regular post ocular setae besides post ocular cilia, rest of the are with white and brown hairs; palpi slender, black; proboscis blackish.

*Thorax:* Brownish-black with three black longitudinal stripes; *ac* 2 + 3; *dc* 3 + 4; *ia* 1 + 2; *ps* 1; *h* 3; *ph* 2; *np* 3; *sa* 2; *pa* 2; *st* 1 + 1 + 1; *mpl* 4-5; *hpl* 7-8; upper part of propleura bare, blackish-brown with silvery pollen; prostigmatic and propleural bristles well developed and accompanied with few short hairs; pro- and



*Sinonipponia smarti* n. sp. Fig. 6: inner and outer forceps, lateral view. Fig. 7: same, posterior view. Fig. 8: fifth sternite. Fig. 9: penis, lateral view. Fig. 10: same, ventral view.

meso-thoracic spiracles brownish; apicoscutellar and discoscutellar bristles well developed 1 pair each, the former is shorter; lateroscutellar bristles 2 pairs.

*Wings:* Hyaline with brown veins;  $R_1$  bare;  $R_4 + 5$  with a row of 8-9 short setae located dorsally and extending up to four-fifths the distance from the basal node to r-m, several short (3-4) short setae present on the ventral surface of basal node of  $R_4 + 5$ ; 3rd costal segment equal to the 5th, the latter with short spines along the basal four-fifths of its anterior margin; costal spines not so stout; epaulet brownish with spines; basicostal scale yellowish; squama white; haltere brown.

*Legs:* Black; fore femur with two rows of bristles along posterodorsal surface and a row of bristles along posterior margin of ventral surface; fore tibia with 3-4 short bristles along the basal one-third of anterodorsal surface and 1 bristle on posteroventral surface at about one-third the distance from the distal end; mid femur with a row of 4-5 bristles along middle portion of anterolateral surface, a row of bristles along basal half of anteroventral surface and 1 bristle on posterolateral surface at about one-fifth the distance from the distal end; mid tibia with 2 bristles along posterodorsal surface at about one-third the distance from the distal end, 2 bristles on mid way on anterolateral surface and 2 bristles on the middle portion of posteroventral surface; hind femur with two rows of bristles along anterodorsal surface, few bristles along anteroventral surface and a row of bristles along posteroventral surface; hind tibia with 2 bristles on posterodorsal surface, 1 long bristle on anterodorsal surface at about one-fifth the distance from the basal end, 2 bristles on anteroventral surface at about one-third the distance from the distal end and with 1 bristle on posterolateral surface medially.

*Abdomen:* Black with silvery checkered pattern; median marginal bristles on 2nd and 3rd abdominal tergites absent but 2nd with 2 and 3rd with 3 lateral marginal bristles; 4th with a pair of median and 3 lateral marginal bristles, 5th with a row of 16 marginal bristles; sternites 1st to 3rd with long hairs, 4th with short hairs, 5th sternite Y-shaped with long spines laterally and 3-4 long hairs terminally; 1st and 2nd genital segments brownish and without marginal bristles; inner forcep elongated, slightly curved at end, outer forcep

almost oval with hairs; posterior paramere elongated and curved at end, anterior paramere longer than the posterior paramere and slightly curved at end; theca shorter than the paraphallus, both are sclerotised; apical palte of paraphallus curved gradually and pointed at end without any backward projection but with one anteriorly long curved process, lateral plate of paraphallus long and elongated; ventralia membranous and slightly pointed at posterior end.

*Holotype* male, Sipahijala, 23.vi.1989; *Paratypes* six males, Pratia Forest, 25.vi.1989.

*Discussion:* This species is almost similar to *Sinonipponia papaii* Nandi but differs from it by the structure of ventralia. The structure of lateral plate of paraphallus and the process of apical plate of paraphallus are also quite distinguishable from *papaii*.

*Distribution:* India: Tripura.

*Bionomics:* This species was collected from the bushes of herbs in the forest area.

#### Subtribe: Harpagophallina

*Harpagophalla kempi* (Senior-White, 1924).  
*Sarcophaga kempi* Senior-White, 1924, 247.

*Harpagophalla kempi* Nandi, 1988, 18.

*Specimens examined:* Five males, Sipahijala, 23.vi.1989; one male, Kanchanpur, 21.vi.1989.

*Iranihindia futilis* (Senior-White, 1924)

*Sarcophaga futilis* Senior-White, 1924, 246.

*Iranihindia futilis* Nandi, 1988, 18.

*Specimens examined:* Two males, Dharnagar, 19.vi.1989; Seven males, Kanchanpur, 21.vi.1989; One male, Kunjaban, 22.vi.1989; Two males, Agartala Air Port area, 23.vi.1989; One male, Matabari, 24.vi.1989; One male, Trishna Wild Life Sanctuary, 26.vi.1989; Two males, Belonia College Campus, 26.vi.1989; Twelve males, Santirbazar, 27.vi.1989; One male, Betaga Forest, 28.vi.1989; Two males, Melaghar, 30.vi.1989; One male, Jamerdhepa, 30.vi.1989.

*Iranihindia martellata* (Senior-White, 1924)

*Sarcophaga martellata* Senior-White, 1924, 247.

*Iranihindia martellata* Nandi, 1988, 18.

*Specimens examined*: Two males, Matabari, 24.vi.1989; One male, Pratia Forest, 25.vi.1989; One male, Santirbazar, 27.vi.1989; One male, Melaghar, 30.vi.1989.

*Iranihindia martellatoides* (Baranov, 1931)

*Sarcophaga martellatoides* Baranov, 1931, 114.

*Iranihindia martellatoides* Nandi, 1979, 209.

*Specimens examined*: One male, Agartala Air Port area, 23.vi.1989; One male, Trishna Wild Life Sanctuary, 26.vi.1989; One male, Santirbazar, 27.vi.1989.

*Distribution*: India: Bihar, Orissa, Tripura and West Bengal.

Subtribe: Seniorwhiteina

*Seniorwhitea krameri* (Böettcher, 1912)

*Sarcophaga krameri* Böettcher, 1912, 165.

*Seniorwhitea krameri* Nandi, 1988, 21.

*Specimens examined*: Four males, Vanghmun, 900 m, 20.vi.1989; One male, Sipahijala, 23.vi.1989; Two males, Pratia Forest, 25.vi.1989; Two males, Trishna Wild Life Sanctuary, 26.vi.1989; Two males, Belonia College Campus, 26.vi.1989; Four males, Jamerdhepa, 30.vi.1989.

Abbreviations used in the text:

*ac* – acrostichal bristles, *dc* – dorsocentral bristles, *h* – humeral bristles, *ph* – post humeral bristles, *np* – notopleural bristles, *sa* – supra-alar bristles, *pa* – post alar bristles, *st* – sternopleural bristles, *mpl* – mesopleural bristles, *hpl* – hypopleural bristles, *ia* – intra-alar bristles, *ps* – postsutural bristles.

Abbreviations used in the figures:

*ap* – apical plate of paraphallus, *lp* – lateral plate of paraphallus, *p* – paraphallus, *pr* – process of apical plate of paraphallus, *t* – theca of penis, *v* – ventralia of penis.

#### REFERENCES

- BARANOV, N., 1931. Neus orientalische Sarcophaginae. *Konowia*, 10: 110-115.
- BÖETTCHER, G., 1912. H. Sauter's Formosa Ausbeute Genus *Sarcophaga*, *Ent. Mitt.*, 1: 163-170.
- BÖETTCHER, G., 1913. H. Sauter's Formosa Ausbeute, Einige neue *Sarcophaga*-Arten. *Ann. Mus. Nat. Hung.*, 2: 374-381.
- HO, C., 1934. Four new species of the genus *Sarcophaga* from Peiping, China. *Bull. Fan. Mem. Inst. Biol.*, 5: 19-29.
- LOPES, H. de S.; KANO, R.; SHINONAGA, S. & KURAHASHI, H., 1977. Catalogue of the Diptera of the Oriental Region, Honolulu, Family Sarcophagidae. 3: 557-583.
- MEIGEN, J. W., 1818-1838. *Systematische Beschreibung der bekannten europäischen zweiflügeligen Insekten*. 7 fascicules.
- NANDI, B. C., 1977. Sarcophagid flies from Orissa, India. (Diptera: Sarcophagidae). *Rec. zool. Surv. India*, 73: 211-216.
- NANDI, B. C., 1979. Flesh Flies (Diptera: Sarcophagidae) in the Agricultural Research Institute, New Delhi, India. *Oriental Ins.*, 13: 187-200.
- NANDI, B. C., 1982. Sarcophagid flies (Diptera: Sarcophagidae) from Assam and Arunachal Pradesh, India. *Rec. zool. Surv. India*, 80: 117-126.
- NANDI, B. C., 1988. Flesh flies (Diptera: Sarcophagidae) in the collection of California Academy of Sciences. *J. Bengal nat. Hist. Soc. (N. S.)*, 7: 11-28.
- NANDI, B. C., 1989. Sarcophagid flies (Diptera: Sarcophagidae) from Andaman and Nicobar Islands, India. *J. Andaman. Sci. Assoc.* (in press).
- PARKER, R., 1917. New flies of the genus *Sarcophaga* from Guam and the Philippines. *Proc. U. S. Nat. Mus.*, 54: 89-97.
- ROBINEAU-DESVOIDY, A. J. B., 1830. Essai sur les Myodaires-Mémoires présentés par divers savants à l'Académie Royal des Sciences de l'Institut de France. II: 1-813.
- SENIOR-WHITE, R., 1924. A revision of the subfamily Sarcophaginae in the Oriental Region. *Rec. Indian Mus.*, 26: 193-283.
- SENIOR-WHITE, R., 1925. New Ceylon Diptera, Part IV. *Spolia Zeylandica*, 13: 213-222.
- SENIOR-WHITE, R., 1927. Notes on Oriental species of the genus *Sarcophaga*. *Spolia Zeylandica*, 14: 77-83.
- THOMSON, C. G., 1868. Kongliza svenska Fregatten Eugenie Resa Omkring Jorden, Vetenskapliga Jakttagelser 2, Zoologi 1, Insekta, 12, Diptera, Stockholm, 443-614.