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Two new species of *Paramerina* Fittkau from India

(Diptera, Chironomidae)

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Two new species, *Paramerina inficia* and *P. quinifricia* are described from India.

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Paramerina was established as a distinct genus by FITTKAU (1962) with *Tanypus cingulata* Walker as type of the genus. Though HAMILTON, SAETHER and OLIVER (1969) treated it as a subgenus of the genus *Zavreliomyia*, the treatment by FITTKAU as a genus is accepted by most present day workers. *Paramerina* has been recorded many times from many parts of the world, but only three species: *Paramerina acuta* (Johannsen), *P. delosa* (Johannsen) and *P. ignobilis* (Johannsen) are known from Java and Sumatra in the Oriental Region (SUBLETTE and SUBLETTE, 1973). This paper reports the first record of the genus from India.

We have followed ROBACK (1971) and SAETHER (1980) for terminology and morphology in the descriptions of the species.

The holotypes are deposited in the collection of the Entomological Department of the University of Burdwan, India. Paratypes are deposited in the National Zoological Collections at the Zoological Survey of India, Calcutta, British Museum (Natural History), London, Zoologische Staatssammlung, München, and in the United States National Museum, Washington D. C.

Paramerina inficia spec. nov.

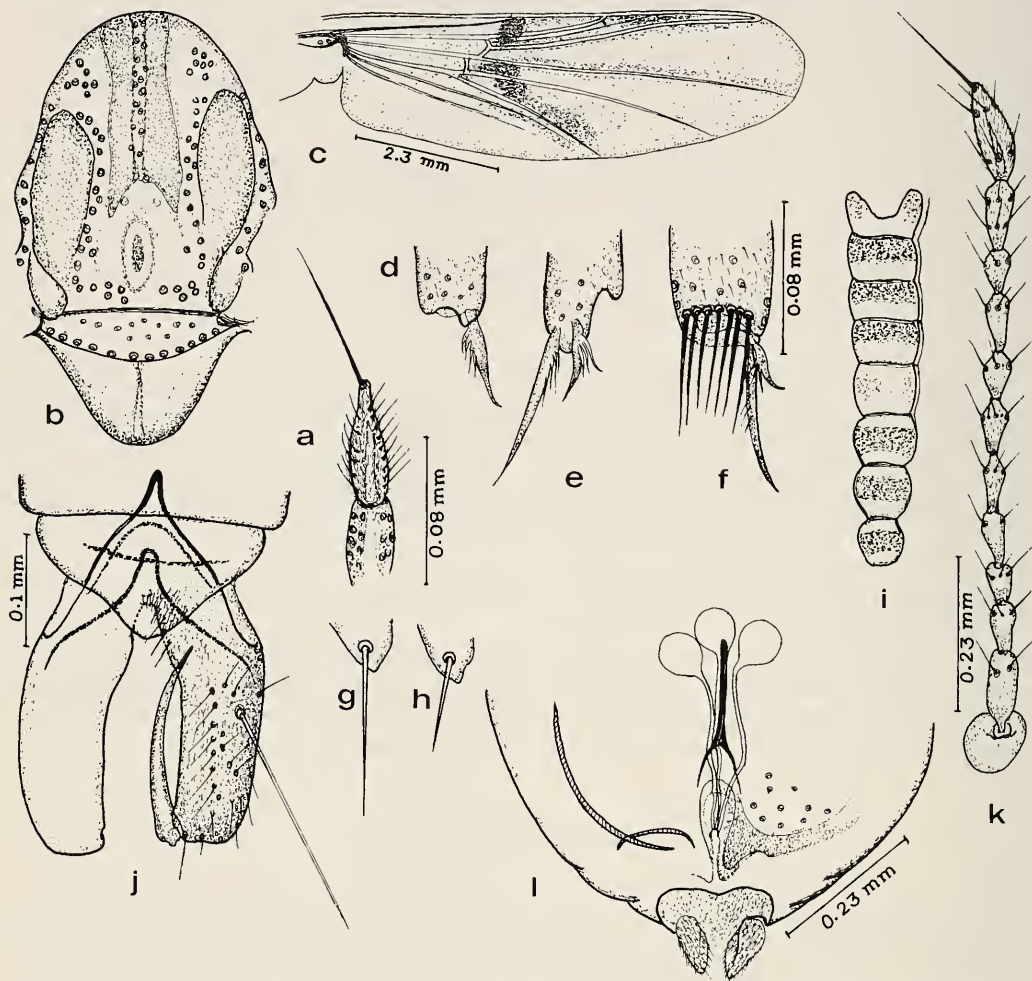
Male:

Yellow. Body length 3.15 (2.51–3.47, n=5) mm, wing length 1.54 (1.46–1.64, n=5) mm and wing width 0.48 (n=5) mm.

Head. Brown. Vertex brown with 11 (postoculars 6, outer verticals 3 and inner verticals 2) setae. Corona without seta. Clypeus with 16–21 (21) setae, clypeal ratio 2.0. Maxillary palp light brown, palpomeres cylindrical, ratio of length of palpomeres I–V 3:4:9:12:21, L/W 4.5. Eyes bare with a dorsal extension 0.15 mm long. Antenna brown, flagellomere XV (Fig. 1a) narrowed, with an apical seta, ratio of length of flagellomeres II–XV 10:6:9:8:8:9:9:10:10:9:10:10:150:16, AR 1.53. CA 0.47, CP 0.78. Pedicel ratio 0.9.

Thorax (Fig. 1b). Yellow. Anteprenotum with 4 anteprenotals. Longitudinal vittae present, middle pair more anterior, each lateral one extended to prescutellum. Acrostichals 24, in two close rows running across the prescutellar area; dorsocentrals 16, in two irregular rows; prescutellars 5; humerals 7, prealars 9. Scutellum with 12 large setae at its posterior margin, postnotum dark brown.

Wing (Fig. 1c). Pale yellow. Brachiolum with 3 setae and 3 sensilla. Macrotrichia dense and well distributed over the membrane and veins. Wing with light yellow patch at the base of r_1 , r_{2+3} and r_{4+5} ; r_{4+5}



Figs. 1 a–l. *Paramerina inficia* spec. nov. (♂, ♀): a. flagellomere XV, b. thorax, c. wing, d. spur of fore tibia, e. spurs of mid tibia, f. spurs of hind tibia, g–h. preapical spurs of mid tarsomeres I–II, i. abdomen, j. hypopygium of ♂; k. antenna, l. genitalia of ♀.

Legs. Pale yellow with no markings. Spur of fore tibia (Fig. 1d) 0.03 mm long, bearing 4 small teeth; spurs of mid tibia (Fig. 1e) unequal, 0.03 mm and 0.045 mm long, smaller spur lyrate with 4 teeth; spurs of hind tibia (Fig. 1f) also unequal, 0.04 mm and 0.09 mm long, smaller spur lyrate with 4 teeth in each spur. Tarsomeres I–II of mid leg with preapical spurs (Figs. 1g–h). Hind tibial comb with 7 setae 0.07–0.12 (n=6) mm long.

Proportions and ratios of leg segments:

	Fe	Ti	ta ₁	ta ₂	ta ₃	ta ₄	ta ₅	LR	TR
P ₁	44	53	40	27	19	11	7	0.75	–
P ₂	52	46	45	25	16	9	6	0.97	–
P ₃	45	60	44	30	20	14	7	0.73	1.46

Abdomen (Fig. 1i). Yellow with base of II–IV and VIII brown. Tergite V pale. Hypopygium (Fig. 1j). Anal point membranous and scale like. Gonocoxite elongate, cylindrical, and about three times as long as broad, bearing a dorsomedian patch of short setae; gonostylus elongated, slender, enlarged at base and slightly bent, ending in a tooth of 0.012 mm long. Strut 1 0.15 mm long, strut 3 enlarged, each arm 0.08 mm long. HR 1.25, HV 2.4.

Female:

Body length 2.12 (1.99–2.29, n=5) mm, wing length 1.6 (1.51–1.72, n=5) mm, and wing width 0.63 (0.60–0.65, n=5) mm.

Similar to male with usual sexual differences. Antenna (Fig. 1k) slightly brown, flagellomere XII longest and others fusiform, about twice as long as wide. Genitalia (Fig. 1l). Notum 0.16 mm long, longer than ramus. Gonapophysis VIII triangular, gonapophysis IX weak. Gonotergite IX relatively well developed. Gonocoxapodeme thickened with ridge along the caudolateral margin. Coxosternapodeme slightly curved and weak. Labia with microtrichia. Seminal capsule balloon-shaped, measuring 0.05 mm long and 0.04 mm wide; ratio of length of seminal capsule to that of notum 15:43.

Material examined: Holotype ♂ (Type no. 121, B. U. Ent.), West Bengal, Raniganj, February 10, 1979, Coll. R. K. Debnath. Allotype data same as holotype. Paratypes 5♂♂, 3♀♀, Basirhat, April 9, 1978, Coll. M. Nath; 4♂♂, 2♀♀, Burdwan, February 16, 1978, Coll. S. K. Nandi; 2♂♂, 2♀♀, Calcutta, April 23, 1978, Coll. D. K. Nath; 1♂, Rahara, February 25, 1979, Coll. P. K. Chaudhuri.

Remarks: *Paramerina inficia* is named for the markings at the anterior and median parts of the wing. The tibial spurs and claws of *P. cingulata* (Walker) from Europe and *P. nigromarmorata* (Goetghebuer) from Africa are quite similar to this species. In the wing, tibial spurs, abdomen, and hypopygium, *P. inficia* resembles *P. septemguttata* (Freeman) from Africa, and *P. testa* Roback, and *P. smithae* (Sublette) from North America. The following combination of characters justifies its consideration as a new member in the genus *Paramerina* Fittkau: prescutellars forming a cluster; wing with light yellow patch at the base of r₁, r₂₊₃ and r₄₊₅; teeth on the tibial spurs; colour pattern of the abdomen and dorsomedian patch on the gonocoxite.

Paramerina quinifricia spec. nov.

Male:

Pale yellow. Body length 2.93 (2.77–3.12, n=5) mm, wing length 1.45 (1.17–1.60, n=5) mm and wing width 0.49 (n=5) mm.

Head. Brown. Vertex slightly yellow with 15 (postoculars 9, outer verticals 4 and inner verticals 2) setae. Corona without seta. Clypeus elongated with 18 setae, clypeal ratio 1.6. Maxillary palp white, palpomeres cylindrical, ratio of palpomere length I–V 3:5:8:11:18, L/W 2.6. Eyes bare with a dorsal extension 0.12 mm long. Antenna light brown, flagellomeres II–XIII cylindrical, flagellomere XV (Fig. 2a) narrowed, flagellomere V with an apical seta, ratio of flagellomere length II–XV 5:7:7:7:7:7:7:7:8:8:11:16:10, AR 1.5, CA 0.5, CP 0.51, Pedicel ratio 0.88.

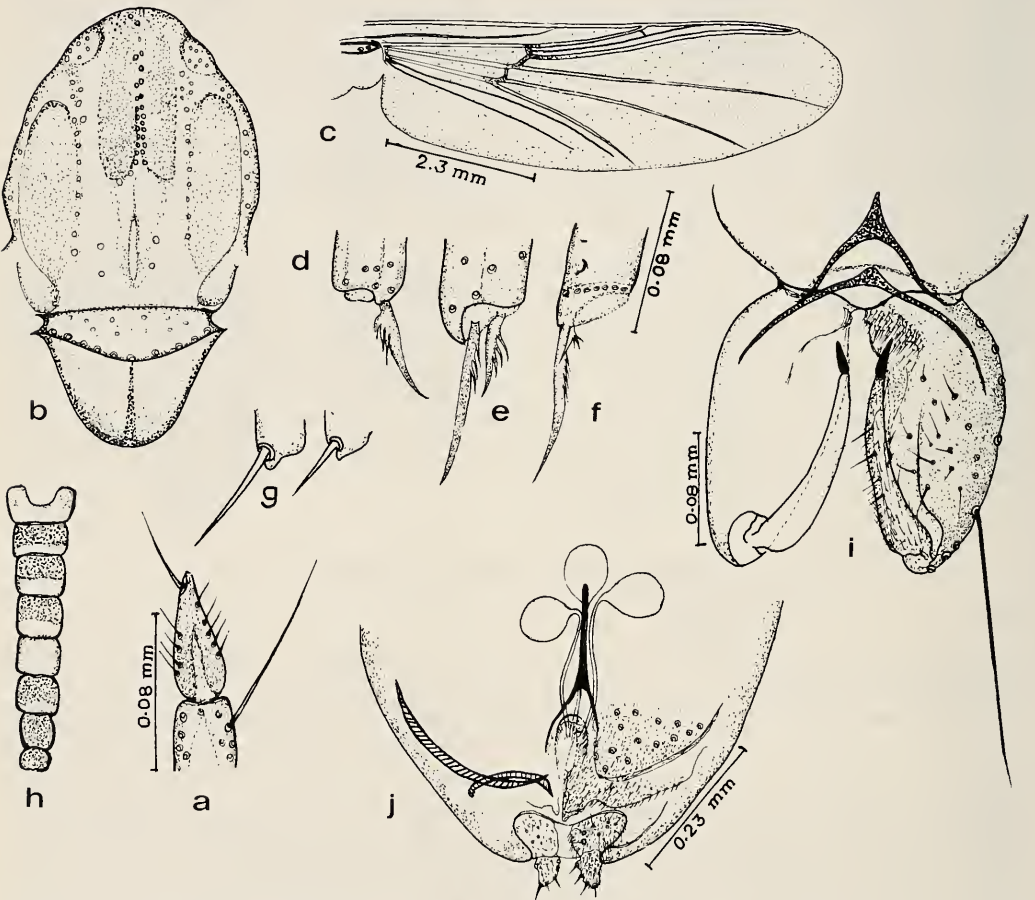
Thorax (Fig. 2b). Yellow. Anteprenotum reduced with 3 anteprenotals. Longitudinal vittae often extend to prescutellum. Acrostichals 28, in two close rows; dorsocentrals 13, multiserial, but uniserial posteriorly; prescutellars 2; humerals 7; prealars 6. Scutellum with 10 large setae at posterior margin, postscutellum dark brown.

Wing (Fig. 2c). Pale yellow. Brachiolium with 3 setae and 3 sensilla. Macrotrichia dense and distributed like *inficia*. Wing without any markings or patch; other characters like *inficia*. Ratio of length of wing from arculus to m-cu and the length of wing from m-cu to the wing tip 25:52; ratio to length of m-cu and the length of wing from m-cu to the wing from f-cu to m-cu 5:7; ratio of length of r-m and the length of m-cu 8:5. Squama with 18–19 setae. Haltere pale and knob with 3 setae. VR 1.03, CR 0.87.

Legs. Light yellow without any marking. Spur of fore tibia (Fig. 2d) 0.04 mm long, bearing 3 teeth; spurs of mid tibia (Fig. 2e) unequal 0.03 mm and 0.06 mm long, smaller spur with 3 teeth; spurs of hind tibia (Fig. 2f) also unequal, 0.02 mm and 0.07 mm long, smaller spur with 3 teeth; Tarsomeres I–II of mid leg with preapical spurs (Fig. 2g). Hind tibial comb with 7 setae 0.04–0.06 (n=5) mm long.

Proportions and ratios of leg segments:

	Fe	Ti	ta ₁	ta ₂	ta ₃	ta ₄	ta ₅	LR	TR
P ₁	44	48	37	25	17	10	6	0.77	–
P ₂	53	46	42	20	14	11	5	0.91	–
P ₃	45	53	43	25	17	12	6	0.81	1.72



Figs. 2a–j. *Paramerina quinifricia* spec. nov. (♂, ♀): a. flagellomere XV, b. thorax, c. wing, d. spur of fore tibia, e. spurs of mid tibia, f. spurs of hind tibia, g. preapical spurs of mid tarsomeres I–II, h. abdomen, i. hypopygium of ♂; j. genitalia of ♀.

Abdomen (Fig. 2h). Yellow with dark brown broad bands at the base of tergites II–IV; tergite V without any band; tergites VI–VIII entirely brown with long setae. Hypopygium (Fig. 2i). Anal point short, like a protuberance. Gonocoxite pale, cylindrical, about three times as long as broad and bearing a dorsomedian patch of microtrichia ventromedially; gonostylus elongated, 0.17 mm long and narrowed, ending in a sharp tooth. Strut 1 0.11 mm long, strut 3 well developed, each arm 0.09 mm long. HR 1.33, HV 2.32.

Female:

Body length 1.40 (1.35–1.73, n=5) mm, wing length 1.17 (1.11–1.2, n=5) mm and wing width 0.45 mm.

Similar to male with usual sexual differences. Genitalia (Fig. 2j). Notum 0.19 mm long, longer than ramus. Gonapophysis VIII triangular, gonapophysis IX weak like *inficia*. Gonotergite IX well developed. Gonocoxapodeme thick. Coxosternapodeme thickened and slightly curved. Labia with microtrichia. Seminal capsule balloon-shaped, measuring 0.04 mm long and 0.03 mm wide; ratio of the length of seminal capsule to that of notum 13:49.

Material examined. Holotype (Type no. 122, B. U. Ent.), West Bengal, Raniganj, February 27, 1978, Coll. R. K. Debnath. Allotype, data same as holotype. Paratypes 5♂♂, 2♀♀, Bongaon, September 24, 1979, Coll. C. Bhowmick; 10♂♂, 3♀♀, Basirhat, June 24, 1979, Coll. S. Nath; 5♂♂, 1♀, Durgapur, October 27, 1977, Coll. P. K. Chaudhuri; 2♂♂, Garia, September 6, 1979, Coll. S. Roy; 2♂♂, Naihati, September 15, 1980, Coll. P. Dutta.

Remarks: *Paramerina quinifricia* is named for the unmarked wing. This species more closely resembles *P. inficia* than to *P. cingulata* (Walker) in tibial spurs, claw, and the male hypopygium. Similarly, it also resembles *P. vaillanti* Fittkau. *P. quinifricia* looks more or less like *P. testa* in the wing, abdomen and male hypopygium; and, *P. hanseni* Roback, in the wing, tibial spur and male hypopygium. But the following combination of characters undoubtedly places it as a new species, distinct from these already described: unmarked wing, chaetotaxy of thorax; teeth in the tibial spurs; colour pattern of abdomen and the characters of male hypopygium.

Acknowledgements

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