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22. SEXUAL DIMORPHISM OF THE PIG FACE BREAM

LETHRINUS RUBRIOPERCULATUS (SATO) FROM SOUTHWEST COAST OF INDIA

Heterosexual animals often exhibit sexual dimorphism in their morphology. However, since it is not uncommon or taxonomically important, only a few observations have been made on sexual dimorphism in freshwater fishes, such as *Puntius filamentosus* (Thobias 1974), *Tetraodon travancoricus* (Inasu 1993) and marine fishes, such as *Narcine timplei* (Waghray 1985), *Priacanthus hamrur* (Tessy and Inasu 1998a), and *Pomadasy maculatus* (Tessy and Inasu 1998b). *Lethrinus rubrioperculatus* (Sato), a carnivore, inhabits the coastal seas and is commercially exploited in the southwest coast. Day (1958) described the genus *Lethrinus* based on 8 species. Fischer and Bianchi (1984) described 18 species of *Lethrinus*, but sexual dimorphism was not described for any of them.

During a study on the biology of perches on the southwest coast, about 43 specimens of the Pig Face Bream *Lethrinus rubrioperculatus* were caught in an area 8° 26' N-76° 51' E to 7° 41' N-77° 11' E (Vizhinjam to Kanyakumari) within a depth range of 39-54 m. Samples were collected by a bottom trawl (mesh size 30 mm at the cod end) by the trawler *Matsya Varshini* during January - March, 2001.

Morphometric parameters such as Total Length, Standard Length, Head Length, Caudal Peduncle Length, Caudal Peduncle Width, Eye Diameter and Inter-orbital width were measured and compared in the two sexes. Sexual dimorphism was exhibited by *Lethrinus*

rubrioperculatus (Sato) (Figs 1a, 1b). The females are larger than the males in all the observed morphometric parameters. Moreover, body weight is greater than the males of the same age group (Table 1).

Table 1: Mean morphometric parameters (in cm) of *Lethrinus rubrioperculatus* (Sato)

Morphometric parameters	Male	Female
Total Length	32.40	33.40
Standard Length	25.40	26.00
Total Weight (gm)	489.50	550.50
Head Length	8.25	8.85
Inter-orbital Width	2.50	3.00
Caudal Peduncle Length	3.45	3.95
Height of Caudal Peduncle	2.65	3.10

The upper jaw of males extends forward and is broader than in females (Figs 2a, 2b). The dermosphenoticum in males is conspicuously protruding, whereas it is flattened and not so protruding in females (Figs 2a, 2b). There are two rows of large scales dorsoventrally located above the pectoral fin base in males, while there is a single row of scales in females (Figs 2a, 2b).

The posterior part of the soft rays of the dorsal fin is more filamentous and protrudes above the upper margin in males, while it is not so filamentous and

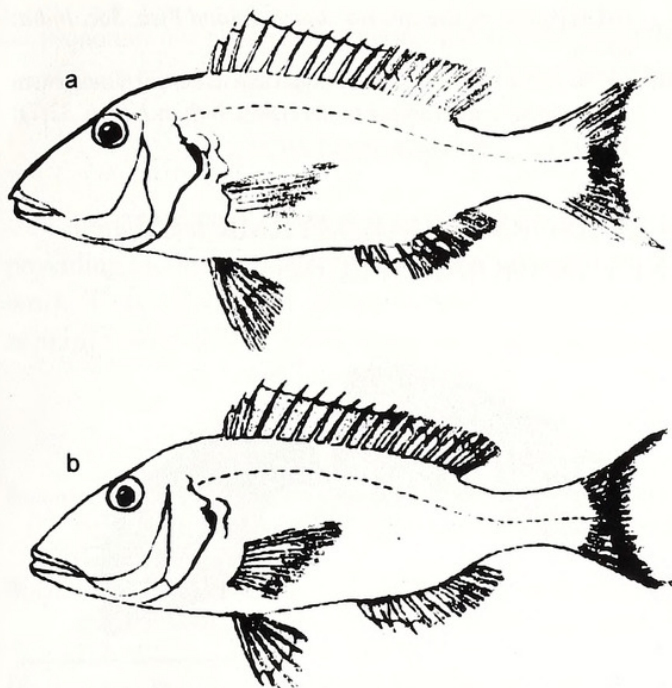


Fig. 1: *Lethrinus rubrioperculatus* (Sato) a: Male; b: Female

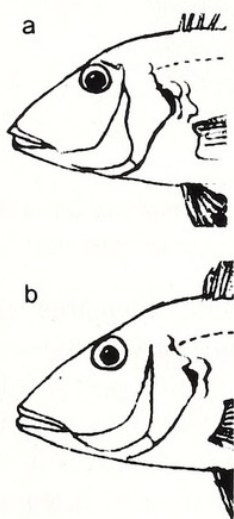


Fig. 2: Morphological difference in the head of *Lethrinus rubrioperculatus*, a: Male; b: Female

protruding in females (Figs 3a, 3b). Soft rays of pectoral fin and anal fin are also more filamentous in males than in females. Interspinous membrane in females occupies a larger area between the two soft rays than in males (Figs 3a, 3b).

Inter-orbital width and eye diameter is greater in females than in males (Table 1). The opercular margin of males has a sharply marked edge, while it is rounded

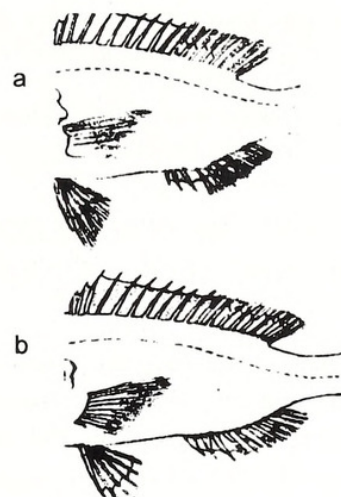


Fig. 3: Dorsal and anal fin soft rays of *Lethrinus rubrioperculatus*, a: Male; b: Female

in females. The scales at the point of commencement of lateral line also differ between the sexes (Fig. 2). The distance between lateral line and caudal peduncle profile, and the caudal peduncle width and length are greater in females than in males (Table 1).

Contrary to our observations, the soft rays of dorsal and anal fin were recorded to be more filamentous in females in *Priacanthus hamrur* (Tessy and Inasu 1998a) and *Pomadasys maculatus* (Tessy and Inasu 1998b).

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23. RECORD OF *STRUMIGENYS EMMAE* (EMERY) (FORMICIDAE: MYRMICINAE) FROM BANGALORE, KARNATAKA AND A KEY TO INDIAN SPECIES

Strumigenys – the largest Dacetine genus – comprises c. 169 species that are distributed in all the zoogeographical regions except the Palearctic (Bolton 1995). Only two species of *Strumigenys* have so far been reported from India (Bolton 1995; Bingham 1903), namely *S. godeffroyi* Mayr and *S. smythiesii* Forel which were originally described in the genus *Epitritus* Emery, and later placed in genus *Quadristruma* by Brown (1949). *Quadristruma* is a small genus containing only two species, *Q. eurycera* (Emery) and *Q. emmae* (Emery). Bolton (1983) considered that the genus *Quadristruma* Brown differs from *Strumigenys* only in the number of antennal segments and suggested that *Quadristruma* Brown would eventually fall into synonymy with *Strumigenys* Smith. *Q. eurycera* is known only from New Guinea. *Q. emmae* has been recorded widely from tropical and temperate regions of the world, and is thought to be of Afrotropical origin (Bolton 1983).

Bolton (1999) ultimately synonymized *Quadristruma* with *Strumigenys* and included *Q. emmae* and *Q. eurycera* in *Strumigenys*. There is a single record of *Q. emmae* from India, but no locality is mentioned (Bolton 1983). I now report *Strumigenys emmae* from Bangalore, India.

Strumigenys emmae (Emery) (Fig. 1a-b)

Diagnostic features: Total length 1.86 mm (Fig. 1a), HL: 0.48 mm, HW: 0.39, CI: 81.25, ML: 0.15, MI: 31.25, SL: 0.21, SI: 52.5, AL: 0.48 and PW: 0.22.

Mandibles linear, strongly curved and each with a strong fork of two long spiniform teeth in a vertical series. Anterior clypeal margin broad, projecting well beyond the mandibular bases on each side with numerous, small, spatulate to spoon-shaped hairs (Fig. 1b). Antennae 4-segmented, the scape narrow basally, but broadening to mid-length, then narrowing again to the apex. Eyes very small, situated just above the ventral scrobe margin. Pronotum more or less flat dorsally, anteriorly rounding into the sides. Metanotal grooves absent. Dorsal alitrunk and upper half of the propodeal declivity reticulate-punctate. Pronotal humeri each with a straight clavate

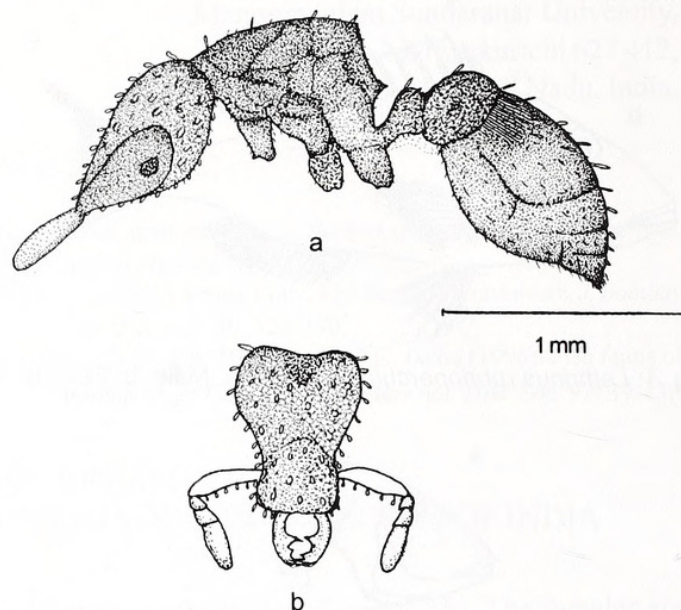


Fig. 1: *Strumigenys emmae* worker, a. Body in profile, b. Head in front view

hair. In profile, pedicel segments with spongiform appendages. Base of first gastral tergite with a continuous row of basal costulae. Petiole, post petiole and gaster with short, narrowly clavate hairs. Colour yellowish-brown.

Material Examined: 1 worker, INDIA, Karnataka, Bangalore, Indian Institute of Science Campus, Coll: Deepalakshmi & Charusheela, 1997.

Distribution: Hawaii, Guam, Florida, Puerto Rico, West Indies, Cuba, Surinam, Sumatra, Singapore and New Guinea (Brown 1949), Philippines, New Hebrides and Australia (Wilson and Taylor 1967) Bahamas (Kempf 1972), West Africa and Ghana (Bolton 1973), India, Malaysia, Sulawesi and Equatorial Guinea (Bolton 1983).

Remarks: *S. emmae* (Emery) is distinguished from other Myrmicinae by its 4 segmented antennae.

KEY TO INDIAN SPECIES OF *STRUMIGENYS* SMITH (Modified from Bingham 1903)

1. Antennae with 4 segments, mandible with 2 teeth, length less than 2 mm *emmae* (Emery)
- Antennae with 6 segments, mandible with 3 teeth, length more than 2 mm 2
2. Pronotum punctured, opaque, mandible with 3 teeth of which the apical is smallest *godeffroyi* Mayr



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