

ON SOME GONADIAL ABNORMALITIES IN *SARDINELLA DAYI* REGAN,
S. CLUPEOIDES (BLEEKER) AND *S. SIRM* (WALBAUM)

ABSTRACT

Some gonadial abnormalities observed in three species of Indian sardines, *Sardinella dayi* Regan, *S. clupeioides* (Bleeker) and *S. sirm* (Walbaum) from Vizhinjam are described.

INSTANCES of gonadial abnormalities have been recorded in a number of Indian fishes (Lal Mohan, 1970) which include cases of hermaphroditism and different types of peculiarities such as constriction of gonadial lobes, partial or total atrophy, malformation, and so on. Among the Indian sardines, abnormalities have been recorded only for *Sardinella longiceps* (Antony Raja, 1963; Bensam, 1964 and 1969; Dhulkhed, 1965) and *S. sirm* (Gnanamekalai, 1963). Hence, the present report of instances of gonadial abnormalities in two other species, *Sardinella dayi* and *S. clupeioides* in addition to two more instances in *S. sirm* should be of interest.

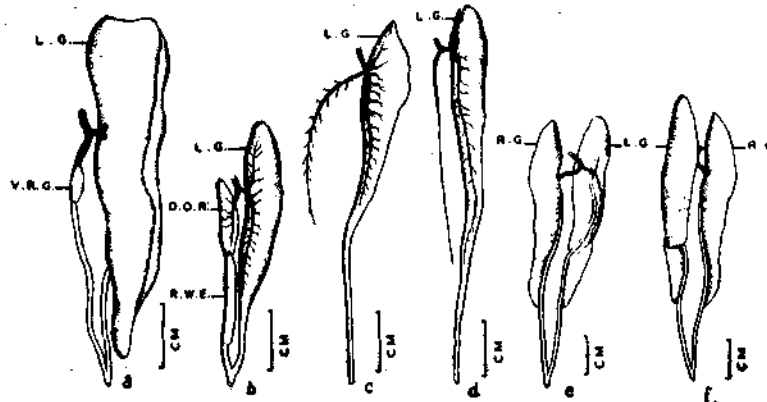


Fig. 1. Gonadial abnormalities in a few Indian sardines. a-e Ventral views of abnormal gonads: a. testis of *Sardinella dayi*; b. ovary of *S. dayi*; c. ovary of *S. clupeioides*; d. ovary of *S. sirm*; e. testis of *S. sirm*; and f. dorsal view of abnormal testis of *S. sirm*. D.O.R.- Dwarfed ovarian region; L. G. - Left gonad; R. G. - Right gonad; R. W. E.- Region without eggs; V.R.G.-vestigial right gonad.

Sardinella dayi Regan

Testicular abnormality (Fig. 1 a): In a specimen of 144 mm (T. L.) observed on 20-12-1971 the right gonad was represented by a vestigial testis, measuring 5 mm in length and 2 mm in maximum breadth while the normal left testis measuring 54 mm length and 16 mm breadth was in stage V of maturity occupying the entire abdominal cavity. A roughly similar gonadial abnormality has been described by Bensam (1964) in the Indian oil sardine, *Sardinella longiceps*.

Ovarian abnormality (Fig. 1 b): In another specimen of 143 mm (T. L.) recorded on 16-12-1971, two deep constrictions were found on the right ovary dividing it into three unequal parts. The anterior dwarfed ovarian region extending to about one third of the entire structure contained ova ranging from 0.10 to 0.36 mm in diameter, referable to stage IV of maturity. The right ovarian artery was visible only up to this region. The middle region of slightly larger length was tubular and devoid of any eggs and the remaining portion tapered off as its duct. The left gonad measuring 44 mm in length and 9 mm in breadth was fully developed in stage IV, the ova ranging from 0.10 to 0.40 mm in diameter.

***Sardinella clupeioides* (Bleeker)**

Ovarian abnormality (Fig. 1c): In a specimen of 209 mm (T.L.) caught on 17-2-1972, it was seen that the left lobe was normal measuring 66 mm in length and having a maximum width of 8 mm. It was in stage II of maturity with ova ranging from 0.029 to 0.114 mm. The right ovary was absent but the corresponding gonadial artery was prominent which appears to indicate that this may be a case of unilateral development of the ovary.

***Sardinella sirm* (Walbaum)**

Ovarian abnormality (Fig. 1 d): In a specimen of 209 mm (T.L.) landed on 9-12-1971, the left gonad was well developed measuring 67 mm in length and 7 mm in maximum breadth and was in stage II of maturity with the ova ranging from 0.043 to 0.129 mm in diameter. As in the previous case the right ovary was absent but comparatively the unbranched gonadial artery was thin. Although Gnanamekalai (1963) has also reported the absence of the right ovary, it would have been really left one, since the author has wrongly designated the sides. Thus, the past and the present records on this species indicate that either lobe of the gonad may be absent in the unilateral development.

Testicular abnormality (Fig. 1e, f): In a specimen of 191 mm (T.L.) caught on 28-2-1972, a twisted left testis in stage III of maturity measuring 51 mm in length and having a maximum breadth of 9 mm was noticed. The twisting was roughly in the anterior two-third region of the testis with a reversal of its dorsal and ventral sides. The vas deferens was found running along the middle of its present ventral surface but continuing along the inner margin posteriorly. The testicular artery was also exposed in the twisted part. The right testis measuring 48 mm in length and 8 mm maximum breadth was normal and comparable to the stage of maturity of its counterpart on the left.

I am grateful, to Dr. M. D. K. Kuthalingam, Officer-in-charge, C.M.F. R. Sub-station, Vizhinjam, Dr. B.T. Antony Raja and Shri G. Luther for critically going through the manuscript and suggesting improvements.

S. LAZARUS

*Central Marine Fisheries Research Sub-station,
Vizhinjam.*

REFERENCES

- ANTONY RAJA, B. T. 1963. *J. mar. biol. Ass. India*, 5 (1) : 148-150.
BENSAM, P. 1964. *Ibid.*, 6 (1) : 135-142.
———1969. *Ibid.*, 10 (1) : 172-174.

- DHULKHED, M.H. 1965. *Ibid.*, 7 (1) : 210-212.
 GNANAMEKALAI, A. G. 1963. *Madras J. Fish.*, 1 (1) : 40.
 LAL MOHAN, R.S. 1970. *J. mar. biol. Ass. India*, 12 (1 & 2): 163-165.

**RECORD OF THE SANDFISH, *KRAEMERIA SAMOENSIS* STEINDACHNER
 [PISCES: KRAEMERIIDAE] FROM THE ORISSA COAST, INDIA**

ABSTRACT

The sandfish, *Kraemeria samoensis* Steindachner is reported here for the first time from the main coast of India, having earlier been recorded from the Minicoy atoll.

DURING a recent faunistic survey of the Orissa coast, an example of *Kraemeria samoensis* Steindachner, belonging to the family Kraemeriidae, was collected on the Konarak Beach (Orissa) in loose sand where wave action was rather severe. This species lived buried in loose sand very near to the shore, escaped rather swiftly when disturbed and hence all efforts to collect more specimens proved futile. The present communication records a member of the family Kraemeriidae for the first time from the main coast of India, having earlier been reported in India only from the Minicoy atoll in the Laccadive archipelago, Arabian Sea (Jones and Kumaran, 1968; Nagabhushanam and Chandrasekara Rao, 1972.)

***Kraemeria samoensis* Steindachner**

Kraemeria samoensis Steindachner, 1906, *Sitzb. Akad. Wiss. Wien.*, 115 (1): 41, pl. 1 (type loc: Samoa); Jones and Kumaran, 1968, *J. mar. biol. Ass. India*, 9 (1): 8, fig. 9; Nagabhushanam and Chandrasekhara Rao, 1972, *Mitt. Zool. Mus.*, 48 (2): 299 (name only).

Material: 1 ex., 13.5 mm in standard length (16 mm total length), Konarak Beach (Orissa) in loose sand, 10th June 1972, coll. P. K. Talwar; ZSI regd no. F. 6849/2.

Description

D. 19; A. 15; p. 8; V. I, 5.

Body elongate, moderately compressed, naked. Depth of body 8.5, length of head 3.4; both in standard length. Eyes small, superior in position and close together; interorbital narrow, convex. Mouth moderate, oblique, lower jaw projects considerably beyond tip of snout with an enlarged fleshy chin forming part of dorsal profile. Upper margin of maxilla, lower margin of mandible and lower operculum margin scalloped. Anterior nostril tubular, over lip, posterior nostril not discernible. Operculum elongate, covering base of pectoral fins. Gill membranes free from isthmus. Lateral line not evident and no pores observed.

Teeth minute on jaws, palatine teeth not observed but according to earlier workers there are a few on the palatines. Single dorsal fin with five flexible non-striated spiniform rays; other rays simple and striated; anal fin with one spiniform ray, others simple; origin of dorsal fin 1.2 of head length behind tip of snout; origin of anal fin below vertical from 7th dorsal fin ray, midway between tip of snout and caudal base; bases of pelvic fins united, lobate, the fins separate, first ray short, inner two rays longest.

Colour, in alcohol, yellowish white, eye black, otherwise unpigmented.

Distribution: Previously known from the Samoan and Marshall Islands in the Pacific, and the Minicoy and Seychelles Islands in the Indian Ocean. The present record from an intermediate locality is of interest.

The author is thankful to Dr. A. G. K. Menon, Superintending Zoologist, Zoological Survey of India, for kindly reading through the manuscript and to the Director, Zoological Survey of India, for necessary facilities.

P. K. TALWAR

*Fish Division,
Zoological Survey of India,
Calcutta-13.*

REFERENCES

- JONES, S. and M. Kumaran 1968. *J. mar. biol. Ass. India*, 9 (1) : 1-12.
NAGABHUSHANAM, A. K. and G. CHANDRASEKARA RAO 1972. *Mitt. Zool. Mus.*, 48 (2): 265-324