

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

ABSTRACT

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

INSTANCES of gonadal 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 gonadal 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 gonadal abnormalities in two other species, *Sardinella dayi* and *S. clupeioides* in addition to two more instances in *S. sirm* should be of interest.

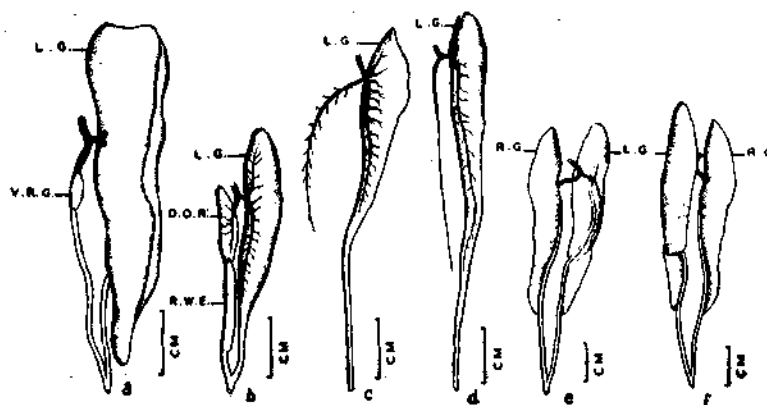


Fig. 1. Gonadal abnormalities in a few Indian sardines. a-e Ventral views of abnormal gonads: a. testis of *Sardinella dayi*; b. ovary of *S. dayi*; c. ovary of *S. clupeioides*; d. ovary of *S. sirm*; e. testis of *S. sirm*; and f. dorsal view of abnormal testis of *S. sirm*. D.O.R.- Dwarfed ovarian 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 gonadal 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. 1 c): 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 gonadal 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 gonadal 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. 1 e, 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.