

SEXUAL DIMORPHISM IN *OXYURICHTHYS NIJSSENI* MENON AND GOVINDAN

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SEXUAL dimorphism in fish is associated with variation in the length of fins, genital papilla and colour pattern. Sexual dimorphism in fin structure is seen in the genera *Punctius* and *Zenarchopterus*. During the taxonomical studies of fish of the Vembanad Lake (Lat. 9°28' and 10°10' N, Long. 76°13' and 76°31' E), the authors observed sexual dimorphism in *Oxyurichthys nijsseni*, a species recently discovered and described by Menon and Govindan¹ from Ennore estuary on the east coast of India. Kurup and Samuel² reported the occurrence of *O. nijsseni* from the Vembanad Lake and a detailed account of its colour and pit organs was also added to its systematic description.

The authors have examined 94 specimens from the Vembanad Lake. The male and female fish of *O. nijsseni* show marked differences in their first dorsal fin. Among the 94 specimens examined, only 7 were males and the remaining were females. In the male (Fig. 1 b) the fourth and fifth rays of the first dorsal fin are filamentous and reach beyond the middle of the caudal fin. The elongated dorsal fin has dark blotches. The dorsal and anal fins are blackish in appearance and intensely spotted. In the female fish (Fig. 1 a), the second to the fourth rays of the first dorsal fin are elongated and do not reach the middle of the second dorsal fin. Also, the fourth and fifth rays of the dorsal fins lack the dark blotches that are seen in the male. The fins are dull white in appearance and are not spotted. In other taxonomic features the male and the female do not seem to differ from each other.

Remarks : The sex of the type specimens examined was not given in the original description (Menon and Govindan¹). It appears that the original description was based only on female fish. Menon and Govindan¹ used the length of rays of the first dorsal fin as one of the characters for distinguishing *O. nijsseni* from its closely related species *O. jaarmant* Weber. The present study reveals that the diagnostic feature of the first dorsal fin is only applicable for female fish. The first dorsal fin of the male specimens may lead to difficulties in identification and hence specific mention about male and female specimens is needed.

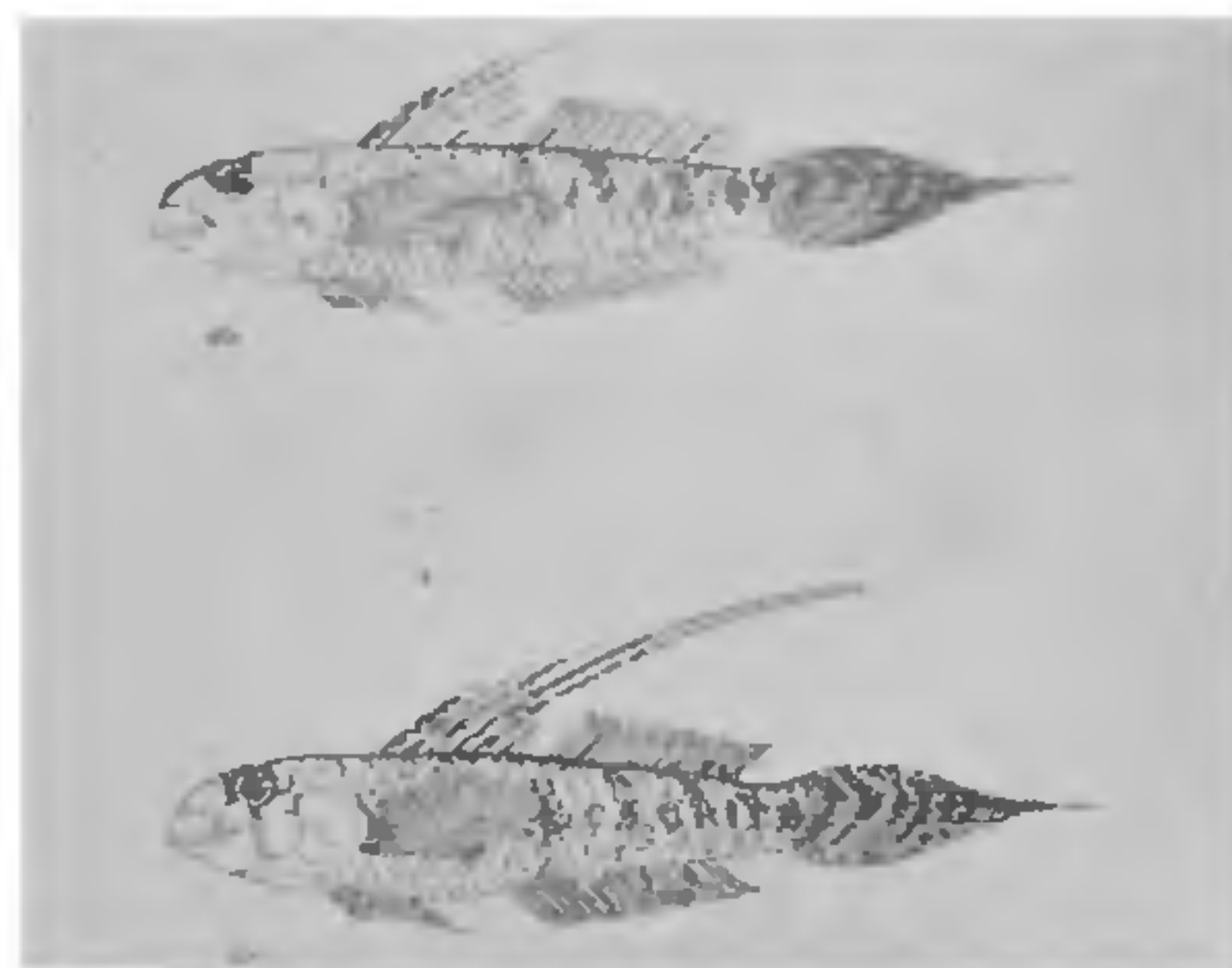


FIG. 1. *Oxyurichthys nijsseni* Menon and Govindan. Lateral view of female (a) and male (b).

There is no report on sexual dimorphism in related species of the genus *Oxyurichthys* Bleeker and so the present observation is of particular interest.

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1. Menon, A. G. K. and Govindan, N., *Matsya*, 1976, 2, 13-15, 2 fig.
2. Kurup, B. M. and Samuel, C. T., *Ibid.*, 1980, 6 (In press).

STUDIES ON HIGH SECRETION OF NEUTRAL POLYSACCHARIDE IN THE STOMACH OF *CHANA GACHUA* (HAM.) INFECTED BY *GENARCHOPSIS GOPPO* (OZAKI)

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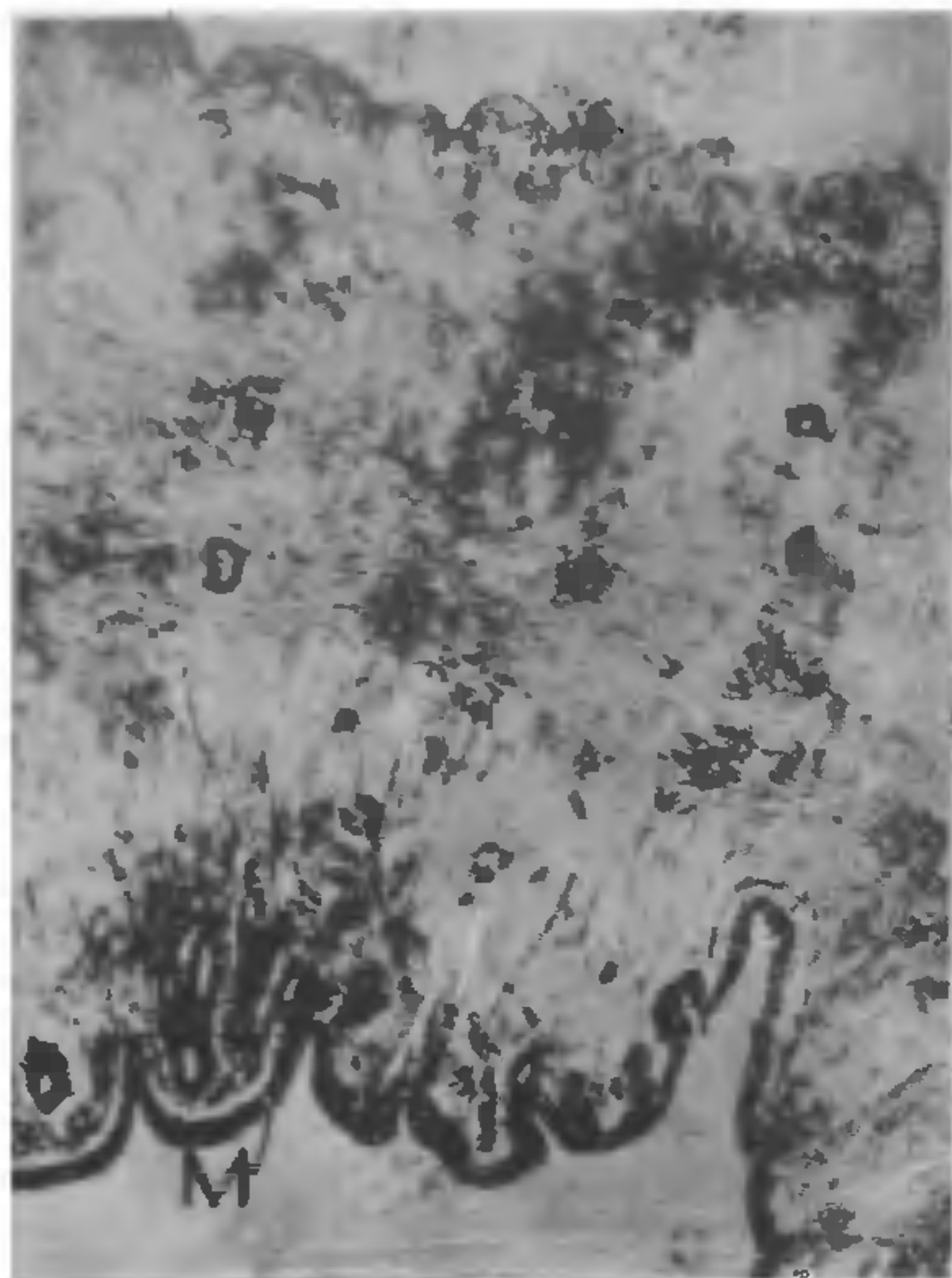
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NEUTRAL polysaccharide and acid mucopolysaccharide in the healthy stomach of *Chana gachua* (Ham.) and of those infected by *Genarchopsis goppo* (Ozaki) have been studied¹. Apical zone of epithelial cells of healthy fish contain mucoid PAS positive materials (Fig. 1). In infected fish, these cells have lesser



FIGS. 1-2. Fig. 1. Section of healthy stomach of *C. gachua* showing PAS positive mucoid materials (M) in the apical border of epithelial cells. Al, Blue and PAS $\times 50$. Fig. 2. Section of infected stomach of *C. gachua* showing lesser amount of PAS positive mucoid materials (M) in the epithelial cells. Note the presence of capsules containing *G. goppo* in the submucosa. Al, Blue and PAS $\times 50$.

mucoid materials (Fig. 2) but large amounts are present in the lumen, stomach wall between the fluke and host tissue and around the body of *G. goppo*. They are PAS positive and do not stain with alcian blue and lose their PAS reaction after prior acetylation and regain it after saponification. They may be neutral polysaccharides secreted by the host stomach to lessen the effects of toxins secreted by the fluke and to reduce the irritation caused after the entrance of the parasite.

This is perhaps the first report of high secretion of neutral polysaccharide by gastric epithelium in infected fish. Bullock³ has reported acid mucopolysaccharide between the parasite and the intestinal wall in salmonoid fishes. Bucke² has also reported large number of goblet cells and acid mucopolysaccharide in the intestine of *Esox lucius* infected by cestodes.

April 10, 1981.

1. Bose, K. C. and Sinha, A. K., *Curr. Sci.*, 1979, 48, 747.
2. Bucke, D., *J. Fish. Biol.*, 1971, 3, 421.
3. Bullock, W. L., *J. Morphol.*, 1963, 112, 23.

SYSTEMS MODELS FOR PARASITE PATHWAYS IN ICHTHYOPARASITOLOGY OF THE HIMALAYAN RIVERINE ECOSYSTEM

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LITERATURE does not record parasitological investigations on hillstream fish in the Himalayan riverine ecosystem. Malhotra and co-workers¹⁻⁴ have attempted some studies on various aspects of parasitocoenoses in fish (*viz.*, species-composition, effect of temperature and host age, feeding habits, and physiological state on parasite distribution) and their statistical correlations were worked out in different sex and weight classes in the host-parasite system.

The present study marks a systems approach (Ratcliffe *et al.*⁵) to identify the changes in the rate of flow of parasites through a host-parasite system and the specific points where the various influencing factors act. The statistical data gathered from a parasitological survey of 2224 hillstream fish of 12 genera and 22 species in Garhwal Himalayas (See Malhotra¹) have been utilized to suggest a basic universal model of a fish-cestode parasite system depicting parasite pathways in the verte-