ON THE GONAD OF THE PROTANDRIC PRAWN *HIPPOLYSMATA ENSIROSTRIS* KEMP

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ABSTRACT

to *Hippolysmata ensirostris* the gonad is a true testfe with a pair of vas deferens in males. In females, the gonad is an ovotestis and consists of an anterior ovarian portion' and[1] a posterior tesrtibulair pontiion. The testiicuSair porttan though present in all females, ‹s› in a State of atrophy. However, the testicular portion contains sperans. A pair of wis deferens is present fa active females in adiditkMi to oviducts.

INTRODUCTION

The phenomenon of protandric hermaphroditism, has been recorded among several species of pandalids *(Pandalus borealis, P. jordani, P. montagui, P. danae, P. platyceros, P. hypsinotus, P. stenolepts, P. gonurus, P. kesleri* and *Pandalopsis dispar)* and in the hippolytid *Lysmata seticaudata* by various authors (Allen 1959; Carlistle 1959 a, b & c; Butler 1964; Rasmussen 1965; and Kubo 1951). The possibility of such a phenomenon in some of the commercially exploited prawns of Bombay was indicated by Mohamed (1965) while studying their biology.

OBSERVATIONS

Based on the morphological changes of the secondary sexual characters found in the endopodites of both first and second pleopods in *H. ensirostm,* Sukumaran (1973) concluded that this species is a protandric hermaphrodite. A gross examination of the gonads and their changes in 425 specimens of this species occurring in Bombay during different phases of sex transformation was made during 1973 and the results are presented here.

Prawns less than 30 mm in length were found to be males. The gonad of an active male is a true testis (Fig. 1) containing sperms in different stages of development.

Further work is deraialMe to convainciinigly prove whether the specie® is truly hermaphrodite (see previous paper), or protandric hermaphrodite as claimed here, in view of the fact that white one of the authors has not succeeded in proving the presence of both mate and female gonads in the same specimens in Isilzes below 30 mm length, the other admits that sperms are contained in the ovotesds[1] of active female specimens in larger sizes. —Mg. Editor

In prawns, measuring 31-40 mm in length, which appeared to be in the early stage of transition from male to female the gonad as well as its ducts did not show much difference from that of male before transition except that immature eggs were noticed inside ithe gonad.

The gonad of specimens measuring over 41 mm length, was found to be an ovotestiis with an anterior ovarian portion and a posterior testicular portion (Fig. 1). Mast of the prawns were in a fully matured condition. The ovarian portion was deep orange in colour occupying the entire carapace cavity. The testicular portion though containing sperms was vary tiny and seen on the posterior end of the ovarian tissue as whitish, elongated, paired lobes with a pair of vas deferens, laterally. They cannot be functional males as they were devoid of fully developed copulatory appendages. The testicular portion showed signs of degeneration and absorption' as the size of the prawn increased.

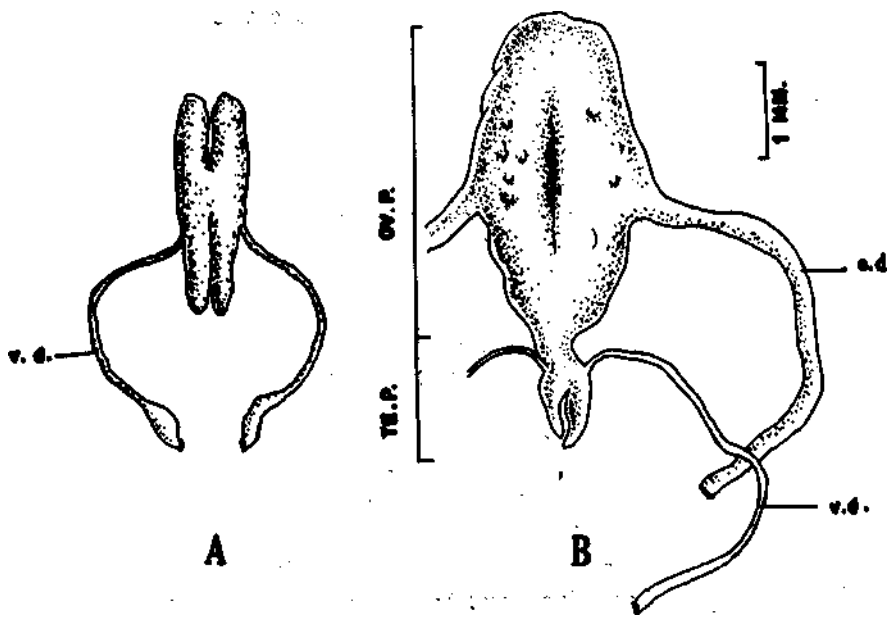
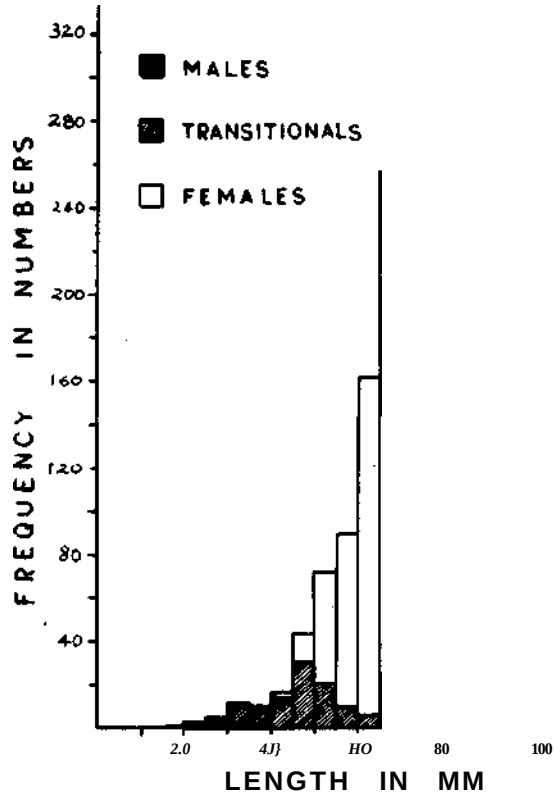


FIG. 1. A: Reproductive org£in of mate, B: (Reproductive organ of female (ducts on right sikte only shown). o.d. - oviduct; OV.P. - ovarian portion; v.d. - vas deferens; TEJP. - testicular portioni.

Thus the present study revealed ithat the gonad is a true testis in males, whereas in females, it is an ovotestis. The presence of a pair of vas deferens. in additioo to oviducts, is an interesting phenomenon in this species as has been observed in some pandalids like *Pandcdus danae* (Berkeley 1929), *P. boreoUs* (Berkeley 1930) and *P. kesleri* (Kubo 1951).



FJG. 2. *Hippolysmata ensirostris.* Distribution of mates, females and transditiamals as diferent length groups along Bombay coast duping 1973.

The process of sex reversal commences in size groups above 30 mm. The frequency of sex reversal varies considerably in the different length groups. It was less than 25% among smialfer size groups (30-50 mm) and 40 to 100% among larger size groups (Fig. 2). Therefore, the sex change largely appears to take place when the prawn measures about 55 mm.

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