ABNORMAL ROSTRUM AND TELSON IN TWO SPECIES OF PENAEID SHRIMP (DECAPODA, DENDROBRANCHIATA, PENAEIDAE) FROM THE PACIFIC COAST OF MEXICO

BY

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ABSTRACT

Morphological abnormalities were observed in two specimens of penaeid shrimp collected along the east coast of the Gulf of California, Mexico. A bifid rostrum was observed in the brown shrimp, *Farfantepenaeus californiensis* and a bifid telson in the white shrimp, *Litopenaeus vannamei*.

RÉSUMÉ


INTRODUCTION AND MATERIAL

Morphological abnormalities have long been noticed among decapod crustaceans. These include malformations in appendages or body segments (Lucas, 1844; Le Senechal, 1888; Richard, 1893; Fauvel, 1900; Santana et al., 1990), duplication of structures (Carvacho, 1988; Williams, 1988; Rudolph, 1996; Nakatani et al., 1997) or lack of such structures (Kulkarni et al., 1980), and reversal of asymmetry (Nouvel, 1944; Lemaitre et al., 1982; Stevens & Munk, 1991). Some deformities are related to bilateral gynandromorphy (Micheli, 1991). Malformations of

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Crustaceana 78 (1): 113-119
Also available online: www.brill.nl
sexual appendages have also been noted among decapod crustaceans (Ivanov & Sokolov, 1997; Rodriguez & Campos, 2000).

Among shrimps, abnormalities of the rostrum have often been reported and most deal with a significant increase in size or in rostral teeth number (see Santana et al., 1990; Ayub & Ahmed, 1991; De Grave, 1999). In Penaeidae, variations in shrimp rostra have been noticed on several species fished in the Indian Ocean. *Fenneropenaeus penicillatus* (Alcock, 1905) (1.9% of examined individuals), *F. merguiensis* (De Man, 1888) (2.9%), and *Metapenaeus affinis* (H. Milne Edwards, 1837) (0.3%) were found to possess abnormal rostra, either for number of rostral teeth or for rostral length (Ayub & Ahmed, 1991). However, no abnormalities in the shape of the rostrum or telson of Penaeidae have been reported before.

During two recent Pacific shrimp sampling programmes of the National Fisheries Institute (Instituto Nacional de la Pesca) of Mexico, shrimps of the genus *Farfantepenaeus* and *Litopenaeus* were collected by trawl along the coast of Sinaloa by the R/V “BIP XII” and smaller boats. During routine analysis of the catch, specimens of the brown shrimp, *Farfantepenaeus californiensis* (Holmes, 1900) and of the white shrimp, *Litopenaeus vannamei* (Boone, 1931) were recognized and separated for closer examination. Among these, one specimen of *F. californiensis* and one specimen of *L. vannamei* presented abnormalities that have apparently never been documented for this group of shrimp before.

**RESULTS**

*Farfantepenaeus californiensis* (Holmes, 1900)

(fig. 1A-D)

Material examined. — One female (carapace length 64 mm), off La Tonina, Altata Bay (24° 59′ 35″N 108° 13′ 19″W), Sinaloa, Mexico, 21/Aug/1996, muddy bottom, depth 10 m (5.5 fathoms).

Remarks. — The length of the rostrum is 18 mm, with a bifurcation starting at about mid-length; the length of each prong is ca. 12 mm, and the fork forms an angle of ca. 50° (fig. 1A, B). The proximal portion of the rostrum bears five dorsal teeth, while the distal, bifurcate portions are smooth (fig. 1C, D). There is one ventral tooth on the left prong (fig. 1A, D). Two short, stout, fixed spines are present between the two prongs (fig. 1B).

In normal specimens of *F. californiensis*, the rostrum bears 8-11 dorsal teeth. The absence of dorsal teeth on the bifurcated part of the rostrum accounts for the decrease in number of teeth in the abnormal specimen, although the two stout spines at the inner base of the prongs might correspond to two of the missing dorsal teeth. There is only one ventral tooth (in lateroventral position) on the left prong.