

## CHROMOSOMAL STUDIES IN *PENAEUS AZTECUS* IVES PRAWN LARVAE

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### ABSTRACT

Larvae of prawn *Penaeus aztecus* showed a diploid number of 88 chromosomes. The karyotype formula is  $18\ sM + 18\ M + 52\ A$ . The chromosomes have a size range of 0.30 to 3.12  $\mu\text{m}$ .

**Key-words :** Karyology, *Penaeus aztecus*.

Earlier, Niiyama (1948), Malecha (1976) and Milligan (1976) described chromosome number in some species of commercially important prawns. The present paper gives an account of karyotypic details studied in the *Penaeus aztecus* IVES prawn larvae, reared at National Marine Fisheries Station (NMFS) Galveston, Texas and supplied to the author by courtesy of scientists in the station.

The prawn larvae were collected from the rearing tanks at NMFS, Galveston, Texas, U.S.A. and fixed in a mixture of absolute alcohol and glacial acetic acid (3:1) for 20-30 minutes and then were preserved in 70% alcohol. The squash preparations were made after staining the larvae in Gomori's haematoxylin. Karyotypic details were studied under 16 x oil immersion objective. Nomenclature of Kirpichnikov (1981) was followed for identification of the different chromosome types.

The larval somatic cells showed 88 chromosomes, in the size range of 0.35 — 3.12  $\mu\text{m}$  (Table I). The chromosomes are divided into 3 major size groups. Group I (Pair 1-10) has the size range of 1.25 — 3.12  $\mu\text{m}$ ; Group II (11 to No. 18) has the size range of 0.55 — 1.05  $\mu\text{m}$  and the last Group III includes all the remaining pairs with size range of 0.35 to 0.55  $\mu\text{m}$ .

The karyotype formula comprise 18 submetacentric, 18 metacentric and 52 acrocentric chromosomes (Fig. 1). The homologous pair No. 1-4, 7-8, 10-11 and 16 are submetacentric. Pair No. 1, 7 and 8 have the usual J-shape whereas pair No. 3, 4 and 10 have peculiar pot and polyp-like shapes. Chromosomes of pair No. 7 showed a differential staining behaviour, one homologue being lightly stained than the other. Chromosomes of Pair No. 1 and 5 show satellites. The metacentric chromosomes were cross shaped (Pair No. 9, 10, 12, 14 & 17) V-shaped (No. 13) and dumb bell shaped (Nos. 6, 21 & 28) The remaining all were small acrocentric conical rods or dots like.

The studies confirmed the diploid number to be 88 in the prawn larvae of *Penaeus aztecus* and the karyotype formula as  $18\ sM + 18\ M + 52\ A$ . The homologous pair No. 7 showed some relationship with the sex-mechanism. It

Table I. Karyotypic details in *Panaeus aztecus* prawn larvae.

Homologous pair No.	Length of arms ( $\mu\text{m}$ )		Arm Ratio L/S	Average total length ( $\mu\text{m}$ )	*Chromosome type
	L	S			
<b>Group I</b>					
1	2.22	0.90	2.46	3.12	sM
2	1.38	0.49	2.86	1.87	sM
3	1.04	0.48	2.14	1.52	sM
4	0.90	0.48	1.86	1.38	sM
5	0.69	0.69	1.0	1.38	M
6	0.69	0.69	1.0	1.38	M
7	0.97	0.41	2.33	1.38	sM
8	0.83	0.41	1.99	1.25	sM
9	0.83	0.41	1.99	1.25	sM
10	0.83	0.48	1.71	1.31	sM
<b>Group II</b>					
11	0.69	0.35	2.0	1.04	sM
12	0.49	0.48	1.0	0.97	M
13	0.49	0.48	1.0	0.97	M
14	0.35	0.34	1.0	0.69	M
15	0.55	—	—	0.55	A
16	0.28	0.27	1.0	0.55	M
17	0.28	0.27	1.0	0.55	M
18	0.55	—	—	0.55	A
<b>Group III</b>					
19	0.42	—	—	0.42	A
20	0.42	—	—	0.42	A
21	0.21	0.20	1.0	0.41	M
22 to 27	0.42	—	—	0.42	A
28	0.21	0.20	1.0	0.41	M
29 to 44	0.35	—	—	0.35	A

\* sM = submetacentric M = metacentric A = acrocentric

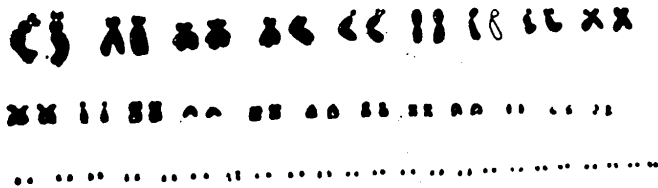


Fig. 1. Karyogram of *Panaeus aztecus* prawn larvae. (Pair no. 1-44).

is inferred that the chromosomal pairs, No. 1 & 5 with regular occurrence of the satellites and 3, 4 & 10 with peculiar shapes can be used as marker chromosomes in identifying the larvae of *P. aztecus* and the hybrids.

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