

NOTE ON THE NATURAL PEARL OF
PLACENTA PLACENTA (LINNAEUS)

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ABSTRACT

There is an extensive bed of *Placenta placenta* in the Kakinada Bay. About 26.2% of the population contains natural pearls which are formed on buccal mass, gonad and mantle. The frequency of occurrence of pearls in larger individuals is greater than that in smaller individuals. The pearls are lustrous and in most cases are spherical. Most of the pearls are smaller than 3 mm.

There are several reports on the occurrence of pearls in the window-pane oyster (*Placenta placenta*) from many localities on the Indian coasts (Hornell 1906, 1909, 1949; Rai 1932; Moses 1939; Jones 1970; Bhavanarayana and Raghunath 1973). All these reports state that pearls are formed naturally, but do not deal in any detail with the frequency of their occurrence, the occurrence of pearls in relation to size of oyster, the size range of pearls formed, etc. The pearls are known to be of use in indigenous medicine in India (Hornell 1949) and in the far eastern countries (Moses 1949). In the Kakinada Bay the window-pane oyster occurs over an area of about 100 sq. km up to a depth of 4 m. An estimated 4000 tonnes of this oyster is landed annually (Narasimham 1973) for being burnt into lime. The present paper gives the

results of examination of 996 specimens, ranging from 51 to 158 mm in length, collected from the Kakinada Bay from December 1973 to December 1974. The specimens were examined in live condition.

The shell of window-pane oyster is thin, and translucent in smaller specimens (up to about 110 mm length); in larger specimens it is relatively thick and opaque. The nacreous layer on the inner side of the shell is not very much lustrous as in the pearl oyster — it is pale in smaller individuals but silvery white in larger specimens — and is prominent near the umbo.

Frequency of occurrence of pearls: Of 996 specimens examined, 261 contained pearls, thus bringing the frequency of occurrence of pearls to 26.2%. The length-frequency distribution of all the specimens examined and that of the specimens containing natural pearls are given in Table 1. It may be seen that pearls are formed for the first time when the oyster is about 80 mm, and that pearls occur in varying numbers in all sizes larger than 80 mm. When the data on the frequency of occurrence of pearls in each of the length groups were analysed (Fig. 1), it became clear that with increase in the size of oyster, the frequency of occurrence of pearls also increases.

TABLE 1. *Length-frequency distribution of window-pane oysters in the Kakinada Bay (Data pooled for the period from December 1973 to December 1974).*

Length groups (mm)	Length frequency			
	of all specimens examined		of specimens with pearls	
	N	Percentage	N	Percentage
50-59	1	0.1	—	—
60-69	3	0.3	—	—
70-79	9	0.9	—	—
80-89	26	2.6	1	0.4
90-99	47	4.7	3	1.1
100-109	62	6.2	6	2.3
110-119	184	18.5	33	12.6
120-129	273	27.4	69	26.4
130-139	260	26.1	93	35.6
140-149	109	10.9	43	16.5
150-159	22	2.2	13	5.0
Total	996		261	

Pearl formation: The pearls were observed on the mantle, in the buccal mass and in the gonad. The mantle pearls are more or less 'free', generally smaller in size than those formed in the buccal mass and gonadal region. Those formed in the two latter regions are embedded. In specimens in which several pearls are formed, they are generally formed close to each other as a cluster. In only 5 specimens, small 'blister' pearls were observed.

The number of pearls in individual specimens range from 1 to 27 (Table 2). It may be seen from this table that of the 261 specimens with pearls, 108 (41.4%) contained only one pearl while the remaining (58.6%) contained more than one.

TABLE 2. Frequency distribution of specimens of window-pane oyster containing one and more pearls.

No. of pearls	No. of specimens	Percentage	No. of pearls	No. of specimens	Percentage
1	108	41.4	13	3	1.1
2	49	18.8	14	1	0.4
3	32	12.3	15	2	0.7
4	25	9.6	16	2	0.7
5	11	4.2	17	1	0.4
6	15	5.7	18	—	—
7	—	—	—	—	—
8	5	1.9	20	1	0.4
9	—	—	21	—	—
10	2	0.7	22	1	0.4
11	—	—	—	—	—
12	2	0.7	27	1	0.4

Pearls (Fig. 2): Almost all the pearls are bright and lustrous. The pearls are small, most of them are spherical while the others are oval or irregular. The diameters measured in a sample showed that 47% are smaller than 1 mm, 45% are 1 mm and more but less than 2 mm and 8% are 2 mm and more. Three pearls of sizes 3, 4 and 7 mm were obtained, but these were either irregularly shaped or spindle shaped.

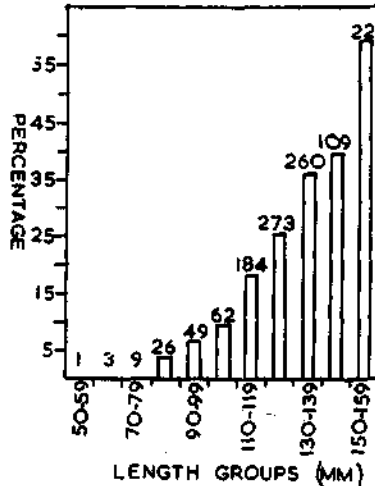


FIG. 1. Percentage occurrence of window-pane oyster containing natural pearls in each length group (numerals indicate the number of specimens examined in each length group).

The study shows that the frequency of occurrence of natural pearls is considerably high in window-pane oyster from Kakinada Bay. Bhavanarayana and Raghunath (1973) examined 70 specimens ranging from 110-135 mm from Kakinada Bay of which only 8 (11.43%) contained pearls, whereas in the present work as many as 26.2% of the specimens examined contained pearls.

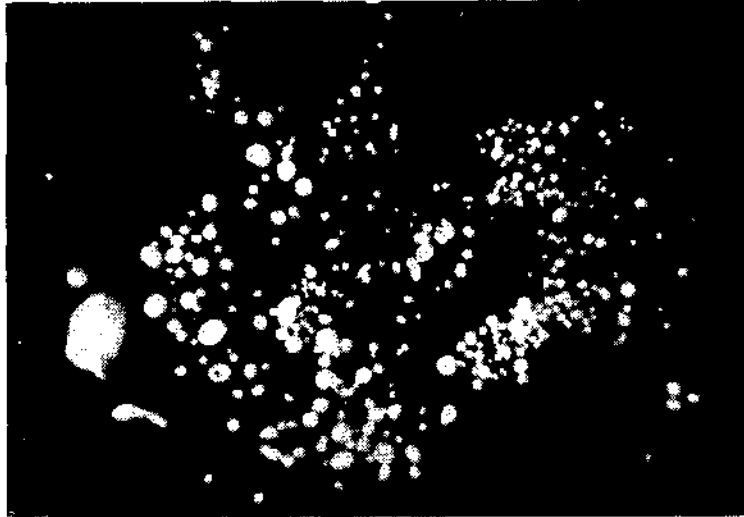


FIG. 2. Pearls of window-pane oyster.

It is possible that the sample examined by the above authors contained many smaller individuals most of which as shown above do not contain pearls, or they examined preserved specimens in which the mantle is greatly shrunken making correct observation difficult.

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