ON THE IDENTIFICATION OF AN OYSTER FOUND ON SMALL PEBBLES AND ISOLATED STONES IN THE INTERTIDAL REGION OF SAURASHTRA COAST

ABSTRACT

This note presents correct identity of an oyster collected from intertidal region of Saurashtra Coast. Identification is based on conchological characters only. The differences in conchological features of two closely allied species *Crassostrea cucullata* and *C. crenulifera* have been brought clearly to facilitate identification.

IT IS well known that the intertidal region of the Indian Coast, especially of the west coast of India abounds in the typical rock oyster *Crassostrea cucullata*. This oyster forms extensive beds on the exposed rocks of the region. Hornell (1948–49) in his description of these beds identified this bedforming oyster as *C. crenulifera*. The main characters of this oyster as given by Hornell are as follows:

1. They are purely marine species never forming beds in backwaters or estuaries particularly common on rocky shores from Sind to Malabar, much less abundant on east coast.

2. The habitat of this oyster is within a narrow belt between tidemarks and under favourable conditions they form densely crowded colonies upon rocks between tide marks.

3. The size is generally smaller than that of backwater or mud oyster and seldom exceeds 3" in length except when living isolated.

4. Externally the shell is tinted an opaque pinkish purple, internally it is white, margined with purple or black.

5. Left or lower valve is convex and deeply crenulated or with lobed edges which tightly interlock with the margin of the upper or right valve.

6. Right valve is flattened and opercular in form.

7. The adductor muscle scar is usually dark purplish black in tint, rarely white.

8. Very characteristic feature is a row of closely set elongated denticulations on the inner margin of the inner surface of the right valve. These fit into a corresponding series of furrows in the lower or left valve.

We have collected the oyster specimens of the above description from small pebbles and stones in the intertidal region of Dwarka. Here the oysters had the same description of characteristics as given by Hornell, but surprisingly this oyster was not found on the oyster beds of this region. The extensive beds of rock oysters that occurred on the coast were formed of *C. cucullata* and not of *C. crenulifera* as stated by Hornell. In this connection, it is worthwhile to recall the description of Awati and Rai (1931) wherein they have stated that the presence of denticulations at the inner margin of upper or right valve and corresponding furrows on the lower or left valve is a characteristic of *C. cucullata*. These authors are silent about the presence of cucullated shell *i.e.*, a recess or anterior depression under the hinge of the lower valve. Hirase (1930) in his studies on Japanese oysters indicated *C. cucullata* as that oyster having a distinct cucullated shell

and with embryonic denticulation on the inner surface of the upper or right valve. Thus the two descriptions as given by Awati and Rai and Hirase appear contradictory.

during high tides. The conchological and malacological differences between the two oysters are given in Table.

TABLE 1. *Conchological differences in some important characters of two species*

C. cucullata	*C. crenulifera*
1. Anterior depression under hinge of left valve always very well developed.	Anterior depression very weak or absent.
2. Undulations regular in the left valve, while absent or very irregular in the right valve.	Undulations very regular and sharp in both the valves, especially at the margins.
3. Denticulations at the inner margin of right valve always absent.	Denticulations invariably very well developed.
4. Ratio of altitude to length of left valve ranges between 0.97 to 1.8 cms.	Ratio of altitude to length of left valve ranges between 0.8 to 1.98 cms.
5. Breadth ranges between 0.6 to 1.29 cms.	Breadth ranges between 0.9 to 3.53 cms.
6. Muscle scar deep purple, almost black in colour.	Muscle scar light brown, sometimes brown bands alternate with lighter bands, but never deep purple or black.
7. Adductor muscle scar narrow and more or less reniform, transversally broad or oblong.	Adductor muscle scar bean shaped, rarely oblong, dorsal margin with a slight concavity in the centre.
8. Transverse striations on the muscle scar not so prominent.	Transverse striations on the muscle scar very prominent especially on the dorsal portion of scar. Striations not less than five in number in any case.

From our collections made at Ratnagiri, Bombay and Saurashtra Coast, we strongly feel that *C. cucullata* has cucullated lower valve with the degree of cucullation *i.e.* (Deep anterior depression below the hinge) differing in individual oyster depending on angle and nature of substratum. The valves are devoid of denticulations and corresponding furrows. The suffusion of purple colour along the margin is the same. The crenulations are not so distinct or entirely absent. The oysters are also flat *i.e.*, not so elevated as *crenulifera*, the situation probably caused by wave beating of the rocks

Our observations and studies on these two oysters at the above three localities indicate that the intertidal region of the west coast harbours both *C. cucullata* and *C. crenulifera*. The former forming extensive beds on the rock tops, while the latter occurring on the individual pebbles and stones. *C. cucullata* is a typical gregarious species, while the *crenulifera* is not. These observations are contradictory to that made by Hornell (1948).

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