

**A RECORD OF NATURAL PEARL OYSTER *PTERIA BREVILATA*
(DUNKER, 1873) (FAMILY: PTERIIDAE) WITH NATURAL PEARL FROM
KAYALPATTINAM COAST OF GULF OF MANNAR,
SOUTH EAST COAST OF INDIA**

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ABSTRACT

The natural pearl oyster of Pteria brevilata species was recorded for the first time from Kayalpattinam coast of Gulf of Mannar. A specimen with pearls was collected as an incidental by-catch in the trawl fisheries, from the Kayalpattinam coast of Gulf of Mannar, South east coast of India between 08° 33' 41.73" N lat. 78° 07' 55.54" E long and 08° 33' 41.28" N lat. 78° 07' 55.58" at a depth of 10-15 m.

Key words: *Pteria brevilata* – *Pteriidae* - First record Kadyalpattinam coast of Gulf of Mannar - Southeast coast of India

INTRODUCTION

The common name “winged pearl oyster” relates to the elongated hinge of *Pteria* spp. There are numerous species of *Pteria* but only two, *Pteria penguin* and *Pteria sterna*, are used for commercial scale pearl culture. *Pteria penguin* is cultured throughout Southeast Asia, in Australia and in some Pacific island nations (Beer and Southgate, 2000) and *P. sterna* is commercially cultured in the Gulf of California, Mexico (Kiefert *et al.*, 2004; Ruiz-Rubio *et al.*, 2006). Only in recent years,

successful production of round pearls from *Pteria* spp. has been reported (Farell *et al.*, 1998; Yu and Wang, 2004). Pearl oysters of the family Pteriidae are commercially exploited throughout the world. The two recognized genera, *Pinctada* and *Pteria* occupy a taxonomic position within:

Family Pteriidae

Genus *Pteria* Scopoli 1777

Pteria brevilata Dunker

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The “wing oysters”, genus *Pteria*, are characterized by a more elongate shape than *Pinctada* spp., being longer (anteroposteriorly) than wide (dorsoventrally). The posterior ear is often greatly prolonged (Velayudhan and Gandhi, 1937). Pearls themselves have always been objects of great value and have symbolized love, chastity, purity or feminine charms in various societies. Good quality natural pearls are rare and therefore extremely valuable. The history, distribution and importance of the pearl as a gem are described in Kunz and Stevenson (1908), George (1978) and Ward (1985). George (1978) believed that W. Saville-Kent produced the first spherical pearls in the 1890s from *P. maxima*. Patents were first filed independently for the procedure by two Japanese, Dr. Nishikawa and T. Mise who were believed to have had knowledge of the techniques of Saville-Kent. The first harvest in 1976 of 6 kg of pearls was worth US\$ 80,000 (US\$ 13,333/kg). By 1983, black pearls were French Polynesia’s top export earner and in 1989 exports to Japan were worth US\$ 41.1 million CIF (McElroy 1990).

The current pearl oyster fishing ground was located between the boundary 08° 35’ 22.5” N lat. 78° 27’ 40.9” E long at a depth ranging from 10 to 15 m. The major pearl oyster beds are scattered within this area. There are several reports on the occurrence of pearls in the window pane oyster (*Placenta placenta*) from many localities of the Indian coasts (Hornell, 1906, 1909, 1949; Rai 1932; Moses 1939, Jones 1970; Bhavanarayana and Raghunath 1973). The present paper deals with occurrence of this species, distribution and size of pearl from Kayalpattinam coast of Gulf of Mannar, Southeast coast of India.

They have variable shapes (from sub circular to aviculoid) and members of the genus *Pinctada* prefer rocky bottom and coral rubble whereas *Pteria* spp., like to attach to sea fans. A family of great economic importance, Pearl oysters have external ligament, large posterior adductor scar and the left valve usually encompassing right valve. It is characteristic for this family for the posterior wing like auricle to be much larger than the anterior auricle. They are usually smooth with growth striae and a nacreous interior surface. Layers of nacre, coated around a grain of sand or small irritant in the mantle, become the pearl. Some species produce pearls of superior quality. Byssus is secreted by the foot and emerging through a byssal gape situated at the right valve. This family comprises about 25 species (Nguyen Ngoc Thach, 2005). This species of pearl oysters attaches by byssus to stones, sea-fans of wharf pilings in tropical seas. Six tropical species produce pearls. Most of the pearl is made up of calcium carbonate and organic matter. At present, knowledge on the biology and taxonomy of paper winged mussel is still insufficient. There has been no documentation on the biological and fisheries aspects nor the taxonomic status in Indian waters.

Material: One specimen measuring 7.2 cm total length, 12 g weight (Fig. 1a, 1b and 1c)

Measurement was emphasized on the following parameters:-

Morphometric measurements	cm
1. Total shell length	7.2
2. Width of shell	4.0

A record of natural pearl oyster *Pteria brevilata*

3.	Pearl weight	0.061 mg	extends its distribution to the southeast coast of India. The pearl producing bivalves are widely distributed in the Rameswaram, Lakshadweep and Indo-Pacific region (Deepak Apte, 1998). <i>Pteria</i> species are moderately common throughout the Indo-Pacific, having a wide range from Baja California and Panama in the East through Micronesia, Melanesia, Southeast Asia, East Africa, the Red Sea and the Persian Gulf. <i>P. penguin</i> is cultured in Okinawa, Hong Kong, Australia, Thailand and the Philippines.
4.	Pearl size	0.3	

Colour: White with brownish periostracum

DISTRIBUTION

The present record from 08° 33' 41.73" N lat. 78° 07' 55.54" E long and 08° 33' 41.28" N lat. 78° 07' 55.58"/10 - 15 m from Kaiyalpattinam coast of Gulf of Mannar

Fig 1a. *Pteria brevilata* (Dunker) from Kadyalpattinam coast of Gulf of Mannar



Fig 1b. *Pteria brevilata* (Dunker) from Kadyalpattinam coast of Gulf of Mannar



Fig 1c. Pearl of *Pteria brevilata* (Dunker) from Kaiyalpattinam coast of Gulf of Mannar



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