Title
RECORD OF PHYLLOBRANCHILLUS ORIENTALIS (KELAART, 1858) (SYN. BRANCHOPHYLLUM ORIENTALE VAR. SAGAMIENSE BABA, 1955) FROM CAPE SHIONO-MISAKI, KII, MIDDLE JAPAN (OPISTHOBRANCHIA: SACOGLOSSA)

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Citation

Issue Date
1971-12-27

URL
http://hdl.handle.net/2433/175723

Type
Departmental Bulletin Paper

Textversion
publisher

Kyoto University
The first author defined about fifteen years ago a variety sagamiense of Branchophyllum orientale (Kelaart, 1858) on a single specimen collected from Sagami Bay, Japan (see Baba, 1955, pp. 9, 40), which was distinguished from the type form of the species by having a black spot in the centre of the branchial papillae and a comparatively shorter radular ribbon (17 × 0.10). However, Mr. K. S. Sundaram of the Central Marine Fisheries Research Institute, Mandapam Camp, Tamilnadu, South India kindly called the first author’s attention to the presence of a black spot on each branchial papilla of the specimen of Phyllobranchillus orientalis (Kelaart, 1858) (the current nomenclature for Branchophyllum orientale) recently collected from the sea not very distant from the type locality of the species in India. Moreover, the second author has collected two specimens which are just the same as the variety from Sagami Bay from the region of Cape Shiono-misaki, Kii, about 300 km south west of Sagami Bay and found that the radular formula is almost as large in the dissected one of the two specimens as in the Indian specimens of P. orientalis reported by Alder and Hancock in 1864.

Then, the authors have come to the conclusion that there is not, now, any reason for separating the variety sagamiense from the type form of the species; the variety should be withdrawn. The present paper is thus to record the occurrence of P. orientalis from Cape Shiono-misaki and to show the morphology of the specimens from this locality in detail in order to make the cancellation of the variety sagamiense intelligible.

The first author is indebted deeply to Mr. Sundaram for his kindness in giving the author the above-mentioned information by a personal communication.

1) Contributions from the Seto Marine Biological Laboratory, No. 553.
2) Shigigaoka 35, Minami-11-cho, Sango-cho, Ikoma-gun, Nara-ken.
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Family Caliphyllidae Thiele, 1931

The family Caliphyllidae consists of 4 genera:

1. *Caliphylla* Costa, 1867
   = *Beccaria* Trincese, 1870
   Type: *Caliphylla mediterranea* Costa, 1867

2. *Phyllobranchillus* Pruvot-Fol, 1933
   = *Branchophyllum* Pruvot-Fol, 1947
   = *Phyllobranchus* Alder & Hancock, 1864
   Type: *Proctonotus orientalis* Kelaart, 1858

3. *Mourgona* Marcus & Marcus, 1970
   Type: *Mourgona murca* Marcus & Marcus, 1970

4. *Cyerce* Bergh, 1871
   = *Lobiancoia* Trincese, 1881
   Type: *Cyerce elegans* Bergh, 1871

*Polybranchia* Pease, 1860 (type: *P. pellucida* Pease, 1860) was not adequately characterized for later identification as a senior synonym of *Phyllobranchus* or of *Cyerce* (see Swennen, 1961, p. 57; Marcus, 1965, p. 269; and Marcus, 1970, p. 31).

*Bosellia* Trincese, 1891 (type: *B. mimetica* Trincese, 1891) is transferred to the Elysiidae (see Marcus & Marcus, 1970, p. 53).

*Phyllobranchillus orientalis* (Kelaart, 1858)
(Japanese name: Kanran-umiushi)

*Proctonotus orientalis* Kelaart, 1858, p. 118,--Ceylon; Kelaart, 1859, p. 492,--Ceylon.


*Phyllobranchus (australis)*: Risbec, 1928, pp. 272–277, pl. 8, fig. 10, pl. D, fig. 4, text-fig. 92,--N. Caledonia.

*Phyllobranchus orientalis*: Pruvot-Fol, 1933, p. 93; Risbec, 1953, p. 166, figs. 116–118,--N. Caledonia.

*Polybranchia orientalis*: Satyamurti, 1952, p. 228, pl. 25, figs. 2a–2b,--Gulf of Manaar.

*Branchocephylum orientale var. sagamiense* Baba, 1955, pp. 9–10, 40–41, pl. 3, figs. 7–8, text-fig. 8,--Sagami Bay.


These specimens were obtained by the second author from the surface of the green alga *Caulerpa brachypus* Harvey growing on the subtidal bed in the said location, and studied by the two authors.

Total length of the animals 14–20 mm. The general body form and colour are approximately as reported previously by Baba, 1955 on a specimen from Sagami Bay. The oral tentacles are small and auriculate. The rhinophores are stouter,
cylindrical and deeply fissured to form two rolled lobes. The branchial papillae, set nearly all around the mantle, are contractile, deciduous, and very sticky to the touch. Each papilla consists of a long stalk and an expanded lamina which is dentilicated on the margin. The liver diverticulum is thickly branching within the papilla. There are tiny tubercles irregularly scattered on the back and branchial papillae. The sole is not divided into two halves by a transverse furrow.

The general integument of the body is translucent, grayish yellow, and with chocolate mottlings scattered over the back, sides and sole. The liver diverticula within the branchial papillae are tinted yellowish green. The fan-like expansion of each branchial papilla is marked at the centre with a deep chocolate or almost blackish spot which was found also by Mr. Sundaram on his specimen of *P. orientalis* from the Gulf of Manaar. The pericardial region is opaque white. Additional
opaque white spots may be seen on the back, rhinophores and branchial expansions. The radula of the Sp. No. 1 consists of about 5 teeth in the ascending series and 30 ones in the descending spiral series. The length of the radular ribbon is thus as long as that shown by Alder and Hancock (1864) in their Indian specimens of P. orientalis. The protruded penis in the Sp. No. 1 is elongated and conical. It is devoid of an apical stylet. There occurs, however, a longitudinal series of about 25 spiny warts on the lower two thirds of the length of the penis. In each of genera, Caliphylla and Mourgona, there is a stylet on the top of the penis. Phyllobranchillus viridis (Deshayes, 1857) from the West Indies differs from P. orientalis in having rows of spiny warts on the upper half of the long curved penis (see Marcus, 1970, p. 32).

Additional note: A single specimen of Phyllobranchillus orientalis was collected from the Palau Islands (Station M. 48) by Dr. Sadayoshi Miyake of the Agricultural Department, Kyushu University on July 19, 1939 and sent to the first author for identification (this was lost later by accident). The contracted animal was 15 mm long. The radula consisted of 9 teeth in the ascending series and 40 ones in the descending series.

Summary

1. There is not any essential difference between Branchophyllum orientale var. sagamiense Baba, 1955 and Phyllobranchillus orientalis (Kelaart, 1858); the two are ascertained to agree with each other in the body form, the colouration with black spots on the branchial papillae, and the constitution of the radular ribbon.

2. Phyllobranchus prasinus Bergh, 1871, P. rubicundus Bergh, 1871 and Lobifera papillosa Pease, 1866 may be cited as additional synonyms of Phyllobranchillus orientalis.

3. Phyllobranchillus orientalis (Kelaart, 1858) is widely distributed in the Indian and the southern Pacific Oceans, and ranges northwards to Shiono-misaki, Kii and Sagami Bay of Japan, constituting a member of the vagile epifauna on the colony of Caulerpa brachypus Harvey.

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Bergh, R. 1871. Malacologische Untersuchungen, Heft 2. (p. 52, Phyllobranchus prasinus; p. 87, P. rubicundus) (not seen)

———. 1905. Die Opisthobranchiata der Siboga-Expedition. Monograph 50. (p. 77, Phyllobranchus rubicundus; p. 78, P. prasinus)


Record of Phyllobranchillus orientalis


EXPLANATION OF PLATE IX

*Phyllobranchillus orientalis* (KELAART, 1858). Figs. 1–5 for Sp. No. 2; Figs. 6–7 for Sp. No. 1.

Fig. 1. Crawling animal from above. Length (Ac) 20 mm. a. rhinophore, b. oral tentacle, c. head, d. anal papilla.

Fig. 2. Branchial papilla, the upper surface. a. principal gland cell, b. accessory gland cells, c. liver diverticulum.

Fig. 3. Branchial papilla, the lower surface.

Fig. 4. Branchial papilla showing radiating ridges (a) on the upper surface.

Fig. 5. Head and foot form below. a. oral tentacle.

Fig. 6. Protruded penis in a fresh state, from above.

Fig. 7. The same in a preserved state, from the side. a. a row of spiny warts.
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